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ABSTRACT

Presented is a collection of 70 short papers (conference reports) on special educational needs for handicapped and gifted children. Representative topics among 12 papers on the gifted are anatomy of education for the gifted, implications of qualitative assessment of intelligence and creativity, and employment status and characteristics of high school dropouts of high ability. Of 14 papers on mental retardation, selected topics include application of language and communication models in programs for trainable retarded, communication needs and programs in mental retardation, and a comparison of normal and subnormal subjects using visual structured categorization tasks. Representative topics from 10 papers on communication disorders are hearing assessment of neurologically impaired children, counseling parents of preschool hearing impaired children, and vocational information for intellectually slow deaf adults. Six papers then discuss behavioral disorders in the emotionally disturbed child, followed by 10 papers on different aspects of learning disabilities. Then presented are two papers on visual impairment, three papers on preschool programs, three papers on administration, two papers on teacher education, four papers on international aspects of special education, and four concluding general papers. (CB)

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TABLE OF CONTENTS

Gifted

The Anatomy of Education for the Gifted. Paul R. Ackerman, Instructor in Special Education, Teachers College, Columbia University, New York, New York.......... 1

Objectives in Reading and Language Arts Instruction for the Gifted. Walter B. Barbe, Editor, Highlights for Children, Honesdale, Pennsylvania.......... 5

Programed Instruction and the Intellectually Gifted; Experiments in Productive Thinking. Martin V. Covington, Associate Professor of Psychology, University of California, Berkely, California.......... 9

The Right Kind of Programing for the Gifted. John Feldhusen, Professor of Education and Psychology, Purdue University, Lafayette, Indiana.......... 17

Employment Status and Characteristics of High School Dropouts of High Ability; Preliminary Report Number Three. Joseph L. French, Professor of Special Education and Educational Psychology, Pennsylvania State University, University Park, Pennsylvania.......... 22

The Implications of the Qualitative Assessment of Intelligence and Creativity. Ruth A. Martinson, Director of Teacher Education Programs, California State College, Palos Verdes, California.......... 30

Adjustment Problems of the Intellectually Gifted. James Twyford Mehorter, Associate Professor of Psychology, Montclair State College, Upper Montclair, New Jersey.......... 34

The Illinois Plan—A Strategy for Educational Change. William R. Rogge, Research Assistant Professor, University of Illinois, Urbana, Illinois.......... 36

A Research Institute's Approach to Giftedness. Ada Schermann, Lecturer, Institute of Child Study, University of Toronto, Toronto, Canada.......... 38

Self-Discovery Through Independent Study: A Project for Able but Underachieving High School Students. William Watson Purkey, Assistant Professor of Education, University of Florida, Gainesville, Florida.......... 41

Creativity in Early Life. (Abstract) Don C. Charles, Professor of Psychology, Iowa State University, Ames, Iowa.......... 43

Effects of Self-Directed Learning on Gifted Elementary School Children. (Abstract) Marvin J. Gold, Head, Training Program for Teachers of the Gifted, University of South Florida, Tampa, Florida.......... 43

Mental Retardation

The Application of Language and Communication Models in Programs for the Trainable Retarded. Barbara Bateman, Associate Professor of Education, DePaul University, Chicago, Illinois 45

Ongoing Research Problems. Raymond S. Cottrell, Jr., Assistant Professor of Education, Ferkauf Graduate School of Education, Yeshiva University, New York, New York 50

Heterogeneity—Implications for Research and Development. Herbert Goldstein, Department of Special Education, Ferkauf Graduate School of Education, Yeshiva University, New York, New York 53

Implications for the Initiation of Work Programs in Local School Districts. Oliver L. Hudson, Teacher of Educable Retarded, Northridge Local Board of Education, Dayton, Ohio 56

Mental Retardation Program of the National Institute of Mental Health. Floyd E. McDowell, National Institute of Mental Health, Bethesda, Maryland 61

How to Organize for the Development of an Effective Curriculum for the Educable Mentally Retarded. Norman J. Niesen, Director, Division on Special Education, Cincinnati Public Schools, Cincinnati, Ohio 65

Performance of Educable Mentally Handicapped Students of Differing Reading Ability on the ITPA. Gilbert Ragland, Coordinator of Special Education, East Carolina College, Greenville, North Carolina 69

Communication Needs and Programs in the Field of Mental Retardation. R. C. Scheerenberger, Assistant Division Director of Mental Retardation, Illinois Department of Mental Health, Springfield, Illinois 72

A Diagnostically Based Curriculum for Psychosocially Deprived Preschool Mentally Retarded Children: Interim Report. Howard H. Spicker, Assistant Professor Department of Special Education, Indiana University, Bloomington, Indiana; Walter L. Hodges; Boyd R. McCandless 75

A Comparison of Normal and Subnormal Subjects Using Visual Structured Categorization Tasks. William R. VanOsdol, Director of Special Education, Central State College, Edmond, Oklahoma 81

Assessment: Beyond Psychometry. Bluma B. Weiner, Associate Professor of Education, Department of Special Education, Yeshiva University, New York, New York 89

Curriculum Considerations in Programs for the Trainable Retarded: Application of Theoretical Models. Gloria F. Wolinsky, Assistant Professor of Education, Hunter College of the City University of New York, New York, New York 93

Habilitation of Severely Retarded Children. (Abstract) J. S. Birnbrauer, Assistant Professor, University of North Carolina, Chapel Hill, North Carolina 98

Strategies and Tactics in Supervising School Programs for the Mentally Retarded—Social Cue Interpretation of Retarded Adolescents. (Abstract) Ethel M. Leach, Director, Children's Rehabilitation Unit School, University of Kansas Medical Center, Kansas City, Kansas 99

Communication Disorders

Hearing Assessment of Neurologically Impaired Children. Jerome G. Alpiner, Director, Division of Communication Disorders, University of Denver, Denver, Colorado 100

Critique on Current Auditory Training Equipment. Philip A. Bellefleur, Research Audiologist, The Clarke School for Deaf, Northampton, Massachusetts 106

The Application of Behavioral Principles to the Modification of Language. Lyle L. Lloyd, Research Associate, Parsons Hospital, Parsons, Kansas; Joseph E. Spradlin, Coordinator of Research, University of Kansas, Parsons Hospital, Parsons, Kansas 111

Longitudinal Study of Performance of Childhood Aphasics on Mental Ability Tests. Don W. McBride, Head, Psychology Department, Institute of Logopedics, Wichita, Kansas 118

Counseling Parents of Preschool Hearing Impaired Children. Winifred Nies Northcott, Former Preschool Director, The Minneapolis Hearing Society, Minneapolis, Minnesota 125

Generating Language Development Lessons from Theoretical Bases. James O. Smith, Associate Professor of Education, University of Kansas, Lawrence, Kansas 131

Adjustment Problems of the Multiply Handicapped Deaf Child. Marcia R. Valente, Clinical Audiologist, St. Mary's School for the Deaf, Buffalo, New York 134

The Syntactical Structures of Preschool Children from Contrasting Social Environments. Paul Weener, Research Assistant, Center for Research on Language & Language Behavior, Ann Arbor, Michigan 138

Assessment of Speech and Language in the Neurologically Impaired Child. (Abstract) Daniel R. Boone, Associate Professor, University of Kansas Medical Center, Kansas City, Kansas 141

Vocational Information for the Intellectually Slow Deaf Adult. Harlan D. Conkey, Associate Professor, Audiologist, Oregon College of Education, Monmouth, Oregon; L. Gerald Buchan, Psychologist, Fairview Hospital and Training Center, Salem, Oregon 141

Behavioral Disorders

Selection Procedures in Preparing Teachers for Emotionally Disturbed Children. Evelyn D. Adlerblum, Associate Professor of Education, New York University, New York, New York 142

An Operational Model for the Movement of the Emotionally Disturbed Child From Public School Through a Day Treatment Facility and Return to Public School. Adrienne Ring, Supervisor of Elementary School, Children's Psychiatric Hospital Day Care Unit, Ann Arbor, Michigan 147

Improvement in the Adjustment and Behavior of Exceptional Children Resulting from a Summer Day Camp Experience. (Abstract) Lester Mann, Supervisor of Special Education, Superintendent Schools Montgomery County, Morristown, Pennsylvania 151

A Conceptual Framework for Testing the Patterns of Behavior Employed by Parents for Engaging in the Changing Process of the Child. (Abstract) Marjorie McQueen, Research Social Worker, Children's Research Center, University of Illinois, Urbana, Illinois 152

Behavior Observations of Grade One Pupils, 1966. (Abstract) June B. Pimm, Ottawa Public School Board, Ontario, Canada; Gordon McClure, Teacher of Emotionally Disturbed Children, Ottawa Public School Board, Ontario, Canada 152

Evaluation of Cognitive-Perceptual-Motor Deficits in Emotionally Handicapped Children. (Abstract) Eli Z. Rubin, Head, Division of Psychology, Lafayette Clinic, Detroit, Michigan 152

Learning Disabilities

Auditory and Visual Learning Related to ITPA Sensory Channels. Antje E. Cripe, Assistant Professor, University of Denver, Denver, Colorado; Betty Ann Wilson, Associate Professor, Purdue University, Lafayette, Indiana 153

Developmental Evaluation and the Institution of Remedial Programs for Children with Learning Difficulties. Marianne Frostig, Director, Marianne Frostig Center of Educational Therapy, Los Angeles, California 156

The Phoenix School Project—A Day Treatment Center for Residential Treatment Candidates. Herbert Grossman, Director Phoenix School, Jewish Board of Guardians, New York, New York; Henry Fishel, Caseworker, Phoenix School, Jewish Board of Guardians, New York, New York 159

Physical Education Therapy. Robert L. Kariger, Instructor in Physical Education, Long Beach Unified School District, Long Beach, California 167

Research Studies in Psycholinguistic Disabilities. Samuel A. Kirk, Director, Institute for Research on Exceptional Children, University of Illinois, Urbana; John McLeod, University of Illinois, Urbana..........173

The Relation Between Hand-Eye Preference and First Grade Reading: A Followup Study. Siegmar Muehl, Director, Children's Reading Clinic, College of Education, University of Iowa, Iowa City; Maurine Fry, University of Iowa, Iowa City..............................184

Learning Disabilities—Who? (Abstract) Sam D. Clements, Associate Professor, Department of Psychiatry and Pediatrics, University of Arkansas Medical Center, Little Rock................................188

Early Identification of Children with Learning Disabilities. (Abstract) Norris G. Haring, Director, Experimental Educational Unit, Mental Retardation and Child Development Center, University of Washington, Seattle...189

Learning Disabilities—Why? (Abstract) Richard W. Outland, Chief, Bureau of Educationally Handicapped and Mentally Exceptional Children, California State Department of Education, Sacramento........... 190

An Empirical Investigation of the Delacato Interpretation of Neurological Organization. (Abstract) Melvyn P. Robbins, Assistant Professor, Faculty of Education, University of British Columbia, Vancouver............192

Visual Impairment

Dynamic Programing for the Multiply Handicapped Blind Child. Sister M. Rose Imelda, Administrator, St. Joseph's School for the Blind, Jersey City, New Jersey..192

An Experimental Approach to the Treatment of Visually Impaired, Multihandicapped Children. (Abstract) Steven Mattis, Co-Director, NIMH Project: A Mental Health Center for the Disturbed Blind Children, Jewish Guild for the Blind, New York City..........197

Preschool Programs

Intellectual Development of Preschool Children. Dean S. Hage, Associate Professor of Education, Illinois State University, Normal.................198

Educational Programing for Preschool Children. (Abstract) Richard R. Ellis, Supervisor and Coordinator, New York Medical College, New York City... 202

Hearing Conservation Programs for Preschool Children. (Abstract) Courtney D. Osborn, Chief, Hearing and Speech Section, Division of Maternal and Child Health, Michigan Department of Health, Lansing..... 205

Administration

Strategies and Tactics in the Supervision of the School Programs in Rural or Sparsely Settled Areas. James R. Galloway, Director, Special Education and Rehabilitation Program, Western Interstate Commission for Higher Education, Boulder..203

A Continuum of Service—Every Administrator's Responsibility. James Greiner, Consultant, Physically Handicapped, Wayne County Intermediate School District, Detroit....................................206

The Role of the Residential Institution in the Continuum of Service to Handicapped Children. John B. Mader, Director, University of Michigan Hospital Schools, University of Michigan, Ann Arbor...........211

Teacher Education

Research Designs for Assessing Teacher Education Programs in Special Education. James B. Macdonald, Professor, Department of Curriculum Instruction, University of Wisconsin, Milwaukee..........................213

Practicum Considerations for Training Teachers of Emotionally Disturbed Children. Alice C. Thompson, Associate Professor and Director, Learning and Behavior-Problems Project, California State College, Los Angeles..221

International Aspects of Special Education

Special Education in the Netherlands. Wietse de Hoop, Associate Professor of Education, West Georgia College, Carrollton....................226

Programs for Exceptional Children in Hong Kong. Grace Lee, Teacher of Opportunity Class, Three Valleys Public School, Don Mills, Ontario........231

Special Education in Sweden. Karin Lundstrom, Councillor of Education, National Board of Education, Stockholm.................................233

Educational Programing for Blind in Kenya. Jason Mutugi, Student, York University, Toronto...235

General

Findings from the Researches of the Interprofessional Research Commission on Pupil Personnel Services. Gordon P. Liddle, Director, Interprofessional Research Commission on Pupil Personnel Services, University of Maryland, College Park..................................238

Role Perceptions of Administrators, Pupil Personnel Wrokers, and Teachers John K. Fisher, Staff Associate, Interprofessional Research Commission on Pupil Personnel Services, University of Maryland, College Park........242

Education—Special or Not! Z.S. Phimister, Deputy Minister of Education, Ontario Department of Education, Toronto..........................245

A Crisis in Evaluation. Maynard C. Reynolds, President, The Council for Exceptional Children, Department of Special Education, University of Minnesota, Minneapolis...251

THE GIFTED

THE ANATOMY OF EDUCATION FOR THE GIFTED

Paul R. Ackerman

The needs for a definitive status report on the education of the gifted in the United States are manifold. In this time of potential legislation affecting the education of the gifted, in this time of state and local innovations in education for all children with special educational needs, in this age of intellectual ferment and rebellion, the roots of responsible and intelligent action must be discerned and nurtured. Knowledge about current opinions concerning the education of the gifted and current educational programing for the gifted presents a basis upon which to evaluate existing educational methodology, augment sound educational practices, and correct past failures. Such knowledge is necessary to assure insecure innovators and to question assured implementers. Such knowledge is necessary to find the antecedents of education of the gifted, to reaffirm such education's historical foundations, and realign its forward goals.

It was with these needs in mind that questionnaires were sent to all states in the United States, Washington, D.C., Puerto Rico, and the Virgin Islands. These questionnaires were sent to all state departments or governing educational agencies within the state or region. They contained questions on state personnel, the functioning of state departments in the education of the gifted, the legislation and finances from the state concerning education of the gifted, and the effect of federal legislation upon state programing. Of the 53 questionnaires submitted to the states and territories, 43 were returned, giving a total sample of 82 percent of all states and protectorates. Two questionnaires returned were from nonstates.

Assuming that most states make some provision for recognition or planning of specialized education for the gifted, all states were asked to describe the role of the state education department in the programing for gifted education within the state. Of the 43 states which replied, however, 15 percent did not answer this question.

Of the replies, a great deal of variety and response may be noted. Forty-four percent of the replying states asserted that stimulation of programs in the education of the gifted was one of their major functions. Since in most cases this particular phrase was not defined, it is speculated that this action portrays a variety of public relations activities combined with salesmanship, persuasion, threats, or pleas to establish gifted educational programing throughout respective local districts. Actions in this regard may be aided by publications, parent groups, advisory groups, policy statements, or the myriad persuasive instruments at the command of state departments.

Thirty-three percent of the replying states felt that consultation played a major part in the development of educational planning for the gifted in their states. Consultation, like stimulation, appears to be another generic term which covered a variety of actions and reactions. It seems fair to generalize, however, that the term "consultation" generally refers to both curriculum consultation and development and the legal explanation of statutes and regulations available to schools in program planning.

The conducting of research is also reported as a significant effort of state departments. It comprises 17 percent of the activities of replying states. Yet, apart from research, a new facet of consultation and research appears to be becoming a major function of state departments.

Fourteen percent of the replying states felt that the demonstration of exemplary programs was a major function of state departments. From the historical standpoint, this type of state department function seems expected. Its uniqueness in the context of the answers to these questionnaires is the frequency with which "demonstration" appears as a major policy activity of state departments. There appears to be a large magnitude of funds, efforts, time, and talents being expended for this effort. Demonstration programs in this current sense seem relatively new in their quantity and quality.

Lest one become overly euphoric about the activities of states toward the promotion of specialized programing in education for the gifted, a final statistic should be noted. Thirty-three percent of the replying states said that it was their state policy not to promote programs for the gifted. In some cases, explanatory notes indicated staffing vacancies sufficient to prevent such planning, but in many cases explanatory notes indicated either no educational rationale for specialized programing or specific policies against special educational provisions for the gifted.

Because it is felt that effective gifted programing could be facilitated most efficiently if there are specific personnel responsible for such programing at the state level, a question regarding state personnel was included in the questionnaire. It was possible to determine the existence of state level personnel from all 43 respondents. Forty-two percent of the replying states (18 states) had state level personnel with some responsibility for specialized programing in the education of the gifted.

Those states having personnel were asked under what administrative head or department such personnel were placed. It was found that nine states, or 5 percent, placed such personnel in departments of curriculum and/or instruction. Six states, or 33 percent, placed their personnel in special education. Four states, however, placed their personnel in general education, either in elementary or secondary education, or a combination of both elementary and secondary.

The questionnaire asked what percentage of the state director's time was devoted to programing in the area of the gifted. It was found that 55 percent of the states had one full time person in their state department with 100 percent responsibility in the area of the education of the gifted. Twenty-eight percent of the states had personnel with part time responsibilities in this area. Three states, or 17 percent, had more than one person in the state department responsible for education of the gifted, and of these three states, the average number of personnel employed in the state department was seven.

In describing the job classifications of state department employees with responsibility of the education of the gifted, it was found that one-half of the states felt their personnel to be both administrators and supervisors, one-fifth felt their personnel were mainly supervisors, and one-fifth felt that their personnel were primarily administrators.

Historical antecedents of state department employment of specific personnel in the gifted were investigated. A story became evident. After a barren decade, from 1947 to 1957, programs developed rapidly, with greatest emphasis around 1960. Although program activity has seemed to diminish in recent years, the possibility of resurgence of employment positions of state department personnel seems again possible. In questioning how such employment positions were originally created, the questionnaires revealed that positions in most states were the results of a study commission. Independent legislative action was listed as the next largest source of establishing employment positions. The national concern over Sputnik and specific changes in state policies were also listed as contributing factors in the establishment of state level positions in the area of the education of the gifted.

Who are the gifted? The importance of this question to researchers and scholars is obvious. It is also obvious in determining the basis for evaluation of specific state planning. Consequently, the respondents were asked their legal or quasi-legal definitions of the gifted. In some cases, the definitions were theoretical, and in other cases the definitions were operational.

Most of the states (28 percent) replied that their legislation or regulations specified no legal definition of the gifted. In many cases, the definition of the gifted was left to local school districts. Twenty percent of the states merely specified a "special talent" or "abilities" classification. In many cases it was not clear whether all talents (such as athletic, music, art, and academic) were included under this category. Obviously, atypical exceptions could be classified under such a rubrick.

Although a very large percentage of states expressed definition in terms of IQ, the IQ level varied. Twenty percent specified an IQ level of 130 or above. Four percent specified a 125+ IQ and 12 percent specified a 120+ IQ level.

Some states, however, determined to define their gifted only by a percentage figure. In many cases, the percentage could have been on a variety of instruments and often included either intellectual or achievement percentages. The rank a student obtained in class was a variation on a definition of giftedness derived from statistics. In many cases, ranking served to effect a multiple criterion basis for definition. Several states had formulae involving multiple criteria as a definition of giftedness. Some formulae were as simple as 125+ IQ plus superior achievement; yet others involved not only a minimum IQ but specified grade average levels in various achievement areas.

Other information on the questionnaire dealt with types of legal provisions for gifted children once they are defined by legislation or regulations. It was found that only 16 states had legislative provisions relating to the education of the gifted. Such provisions were most often (50 percent of the states) administered by extending special education legislative provisions to include the gifted. However, 24 percent of the replying states established autonomous programs for the gifted; i.e., those persons responsible at the state department level functioned under legislative provisions autonomous from those provisions under which other members of the state department functioned. Thirteen percent of the states had legislative provisions which only defined the gifted.

Fourteen states had financial provisions for the gifted. The most usual way of financing gifted education was through special appropriations to various school districts. The next usual way of financing educational provisions was through special education formulae. Some states sponsored gifted programs through private foundations, federal research and demonstration funds, matching funds, and excess costs formulae. It was found that appropriations for the gifted ranged from $13,500 to $3,750,000 in the 13 states replying to this question. Respondents were asked if state departments approved the operation of programs for the gifted. Only 9 had such policies; 26 did not. Four states furnished specially qualified teachers for the gifted to local school districts; 31 did not.

The question of certification of teachers of the gifted has long been an issue among professional educators. Since the wording of this question in the questionnaire did not permit easy interpretation, replies to the question of certification practices are difficult to interpret. However, at least two states have certification for teachers of the gifted which is separate from regular certification. Three states have formative or questionable certification procedures, and 31 states have no certification qualifications. It is important to note that the number of states having certification standards for gifted teachers is, indeed, quite small.

What impact is new federal legislation having upon programing for the gifted? Specifically, what effect is PL 89-10 having upon such programing? Hailed as a possible source for educational activities in behalf of the gifted, it was felt pertinent to solicit information relative to its use in this regard.

A great variety of activities are arising from funding through 89-10. Four states have indicated that demonstration schools for the gifted are being formed. Two states are increasing their library services. Psychological staff is being added to serve gifted students. Regional materials centers are helping teachers with enrichment problems. Additional state personnel are being allocated through extra funding. Laboratories are being built and equipped to handle independent research projects.

Even more increased activity is seen in the planning of enrichment centers. Underachievers are being specifically studied and methodological programs, evaluated. Title IV is being used for inservice workshops. Special teachers may be financed under 89-10. Title V is being used for state department publications. Summer honors camps and governors schools are being extended by local school districts to include summer honors programs in local school districts. Truly, a great deal of activity is occurring as a direct result of federal legislation.

However, the provisions of PL 89-10 are not the only provisions currently being utilized in efforts to improve programs for gifted students. Eleven states earmark NDEA funds for materials for gifted students. Six states use NDEA guidance services specifically for the gifted. NDEA institutes are used to train specialized personnel in gifted education and counselling. NDEA, Title II, is being used to purchase enrichment materials. Even work-study programs for the gifted are being financed with federal funds.

In answers to other questions, it was felt that the future directions caused by current funding from federal sources would lead to overall program improvement. Several states felt that NDEA had succeeded in its original intent of upgrading the education of gifted students. Many states hailed the current efforts of federal aid in research in creating well founded and basic innovations. Some states saw direct aid to gifted education as a probable forthcoming federal legislative provision.

Another question concerned specific implications for the future as derived from present state activities currently in progress. Many states are working on better and more comprehensive state legislation. Demonstration centers seem to be flourishing. Increased independent study is a movement in some states; it is being evaluated as well as innovated. Summer programs are being increased. Inservice workshops are felt to be necessary to effect efficient change. Teacher training programs are being evaluated to improve their content, scope, and practicability.

The present activities of states should result in additional state personnel. Curriculums are being developed to enrich gifted students via educational television. State services will be extended to include more than mere consultation services or stimulation functions. An increase in honors programs and advanced placement programs seems imminent. Material and resource centers, particularly in rural areas, will become a reality. Finally, more publications dealing with curriculum, specific methodology, and reviews of research will be forthcoming.

Much of these activities will be affected by research. A specific question about research provisions reveals that eight states now contain demonstration schools, eight are working on methodological studies, two are doing program evaluations, two are doing evaluations of the teacher education programs, and two are doing early admissions studies. Other state research projects include teaching methodology for underachievers, motivations of the gifted student, evaluation of advanced placement programs, and development and standardization of identification instruments. Consequently, it seems as though these varied activities of the future will contain a great deal of research background and foundations.

The data that have been presented so far represent a tabulation, by frequencies, of various practices in states and protectorates. Some qualitative assessment of answers according to different gestalten needs to be made. In attempting this, one is struck by four statements which will be used in summary of the results of this questionnaire.

Only about one-third of the states have coordinated attempts to analyze and improve education of the gifted in the United States. This is due to the fact that greatly diverse definitions of the gifted exist in many states, making communication between states improbable and confusing. This picture is further complicated by a lack of state department personnel, coupled with little legislative recognition of the needs of the gifted for specialized educational modifications. Furthermore, only a few states devote extra finances to the reimbursement of local school districts, thus forcing local school districts to provide their own resources for the unequal costs of specialized programs for the gifted.

If one were to categorize the last five years, he would have to label them "years of planning." Study commissions have flourished. Research and demonstration projects have received extensive funding, wide publicity, and solid theoretical foundations. Job descriptions have been written in these years, and policies have been formulated. It has been these years in which the most rapid growth in employment of state personnel has occurred. Although actual programing has increased during these years, such activities have not been extensive.

There is no question that the current upsurge of activities in educational programing for the gifted has occurred as a direct result of federal aid. PL 89-10 has increased research, fostered demonstration schools, supported ideas and creative innovations in educational programing, and strengthened state departments. NDEA has provided additional materials and guidance services for gifted children. The Cooperative Research program of the US Office of Education provides funds for experimental projects in gifted education. The benefits of such federal aid cannot help but be felt for many years.

From this current status report, it can only be concluded that activities in educational programing for gifted students can only increase quantitatively and qualitatively. We have made a start on a national level by fruitful years of planning. The stimulation of funding, plus creative ideas, has produced a basis for action and movement. The education of the gifted student will proceed on solid practical and theoretical research. Let us hope it is not too late.

OBJECTIVES IN READING AND LANGUAGE ARTS INSTRUCTION FOR THE GIFTED

Walter B. Barbe

The objectives of instruction for the gifted must be a major area of concern. Particularly in reading and language arts instruction is it important that the objectives be constantly examined and evaluated. It is likely that, through reading, the gifted child will make much of his own curricular differentiation. To the extent the school is successful in establishing and attaining sensible objectives in reading and language arts instruction, it will be successful in educating the gifted.

Dilemmas in Instruction

Certain basic dilemmas exist when objectives of instruction for the gifted are considered. A brief examination of these serves the purpose of alerting us to ever present problems.

1. Are goals for the gifted different from those for the average? There is almost complete agreement that the goals of reading and language arts instruction for the gifted are different from those for average and slow students, but the agreement does not extend to the point of actually stating what these differences are. Whether they are differences of degree or only of kind is not clear.

Too many programs for the gifted are different only in quantitative respects. The gifted child is expected to read twice as much or write a report twice as long. If the differences are not in terms of quantitative coverage of material, they are sometimes in terms of expected outcomes as determined by standardized tests. Such programs erroneously assume that, because the gifted child scores two years above grade level, he is satisfactorily meeting the goals of reading language arts instruction. This is not necessarily true.

The qualitative goal, that of developing permanent interests in reading and the skill to read any material which a student may want or need to read, is more sensible. This goal differs only in degree from that of the goal for reading and language arts instruction in the regular curriculum.

Because of the unique learning abilities of gifted children, the type of reading program may be different at the beginning stages from that for average children. It is not certain that the objectives for instruction at the higher grade levels need to be different.

2. Can a student be gifted in reading and not gifted in other areas? The view of giftedness as being all inclusive is at last being challenged. While some individuals have abilities in all academic areas, more and more individuals are being identified who are gifted only in specific areas. It is important to realize that some students will be gifted in verbal areas and not gifted in other ways. Establishing programs for such students indicates the strong need for programs for the gifted to recognize the diversity of gifts.

3. Is grade level a satisfactory measure of reading ability for gifted children? The use of grade level as a means of reporting the reading ability of children demands careful scrutiny. Its original intention was, no doubt, to enable the teacher to know the grade level of material on which the child should be working. The rigid grade level concept is today being questioned, particularly for gifted students. The word count which was considered almost sacred only a few years ago is today practiced far more widely than can be justified by research.

The greatest challenge to the grade level concept of measuring reading ability is its failure to include the influence of interest. Particularly with gifted children, the interest factor greatly affects the level of material which the child is able to read and understand. Gifted children have been found to have a variety of reading levels, depending upon the material being used to test them and their own interest in scoring well. Rather than the stressing of reading level of material, emphasis on self selection and interest level is more advisable. Adhering to rigid grade levels limits, rather than promotes, a child's reading.

4. Should gifted children be expected to read at grade level or ability level? The controversy continues whether gifted children should be expected to read at grade or ability level. The question is really only academic. The child should potentially be able to read at ability level (roughly two years above grade level), but there is little reason for the classroom teacher to resort to textbooks of a higher grade level. The ever increasing amount of literature suitable for children on virtually every topic should mean that the teacher would not have to resort to the use of textbooks. The textbook is meant to be only an introduction to a topic and should not be considered either the final goal of the course or a step to the next textbook.

What We Know about the Reading of Gifted Children

Research on the reading of gifted children has been extremely extensive. A bibliography of professional literature in the area of reading and the gifted (Steiert, 1963), covering a ten year period, contains 24 articles on reading and instruction in reading for gifted children at the elementary level, 45 articles at the secondary level, and 15 articles dealing with library programs for gifted children.

However, if there has been an abundance of material in journals concerning the gifted and reading, the reverse has been true in professional books. Tisdall (1964) examined 15 of the "more popular books on the gifted" and reported that 9 of these had "no reference whatever, either in the table of contents or in the index, to the subject of reading. Three of the remaining six books, each over 250 pages in length, devote five pages or less to reading. Two of the remaining three well known texts on the education of the gifted devote no more than ten pages each to reading. One book out of the 15 contains a chapter (30 pages) on the subject of reading for the gifted." Tisdall summarized that only 1.35 percent of the total content of these 15 widely acclaimed books dealt with reading. Klemm's (1953) doctoral dissertation provided much information concerning reading instructional programs for gifted children.

It is well established that gifted children learn to read earlier than do average children. Approximately 50 percent of gifted children learn to read before entering school, in many instances at their own volition and without formal instruction. More gifted girls than boys learn to read prior to entrance in school, but more gifted boys than average girls learn before entering the first grade. It is important to note that for the most part those studies which identified children who had learned to read before entering the first grade found that they had done so without formal skill instruction. It is known today that with formal instruction average children can learn to read before entering first grade, but the question still remains unsatisfactorily answered as to whether or not there is any later benefit to the child for having learned at an earlier age. Indications are that neither the necessary effort on the part of parents nor depriving the child of his childhood is compensated for by the fact that the child is able to read at some phenomenally early age.

The golden age of reading for the average child is found to be between the ages of 12 and 13. The time when the child reads more than he will the rest of his life comes tragically soon for the average child. Studies of gifted children differ somewhat in their findings, with the golden age of reading apparently being somewhere between the ages of 12 and 13 as found for average children and up to, but certainly no later than, 17. This is a distressing report, for surely our instruction, particularly with bright students, could be expected to result in their not reaching the golden age of reading until some time in adulthood.

Gifted children read more and better than do average children. This may be only an artifact of the definition of the gifted child, however, for the very same verbal ability which has been used to measure giftedness is also the ability required to be an effective reader.

The literary interests of gifted children are more pronounced than those of average children. They are developed earlier and are maintained throughout life among the gifted group. This may be due more to socioeconomic factors than to factors of giftedness. Frierson (1964) found that gifted children from higher socioeconomic backgrounds possessed this literary interest, while gifted children from lower socioeconomic backgrounds were more interested in things requiring active participation. The stereotyped characteristics of gifted children may be more a byproduct of higher socioeconomic status than of giftedness itself. In all generalizing about gifted children, awareness of this possibility must be observed.

Gifted students demonstrate both an earlier and a more intensive interest in biography than average children. This is no doubt due to their desire and ability to identify with successful people. In dealing with interests, it is noteworthy that the reading interests of gifted girls is the elementary schools tend to follow that of boys, both gifted and average, more closely than that of other girls.

Objectives of Reading Instruction

The primary objective of any reading and language arts program is to develop permanent interests in reading and language arts. This permanent interest is best fostered when a child has developed the skills necessary for him to achieve effectively. The goal is not merely to get through a basal text so that the child can get to the next basal text.

One of the outstanding traits of programs for gifted students is the success of the reading program. Freehill (1961) states, "Reading instruction in the modern elementary school provides the best example of teaching methods suited for the education of the gifted" (p. 152).

Much of the curricular differentiation for gifted children is made through the reading program; and in those situations in which special programing is not available, the child frequently makes his own differentiation by self-selection of reading material. The major goal of reading is well expressed by the philosophy of the Major Work Program (Barbe and Norris, 1963), in Cleveland, Ohio, in which the children state that the important thing is not what they read, but what they think and feel about what they read.

Just as the goal is to develop permanent interests, a step toward this goal is the establishment of effective reading skills. Skill instruction is not a goal or objective in itself, but merely a step toward the ultimate goal. In too many situations the acquisition of skills, when they are presented in isolation, becomes the all important factor. Gifted students are especially good at acquiring isolated skills. When such skills are presented in isolated fashion and not related to everyday reading situations, the gifted student is better than the average student at learning them, whether or not he ever knows how to apply them. Tragically, the gifted student may actually be wasting his time in skill instruction, for he frequently can already read and does not need to use the skill, while the average or slower student who is unable to master as many different things as the gifted student may spend too much time learning the skills and not enough time learning how to read.

A major goal of a reading program for gifted students is involvement in the process of reading. Indeed, a high level of reading is achieved when the student can enjoy the process, whether or not he particularly enjoys the results. It is likely that only among gifted students can such a high level of appreciation be developed that the child can say, "I enjoyed reading the book, even though I did not care for the book itself."

Comprehension for gifted students is far more than mere memory of what has been read. It involves interpretation based upon past experiences, both real and vicarious. Gifted students should be especially adept at interpreting material. Torrance (1965) suggests that teachers can help high school students become creative readers in two ways: (a) "...do things to heighten the student's expectations and anticipations as a reading task is approached," and (b) "...encourage or permit pupils to do something with what is read, either at the time it is being read or afterwards" (p. 463).

Sources of Materials

Perhaps one of the most complete listings of book lists is that prepared by Hodges and Fleming (1965). This is not a list of books themselves, but rather a listing of those collections and lists for varying age levels and for different purposes. Complete ordering instructions are given in addition to prices. The author must confess a bias in noting that children's magazines are not included, but perhaps the resourcefulness of gifted students themselves must be depended upon here to allow for self-selection of a variety of reading materials which would include many different types of reading material in addition to books.

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PROGRAMED INSTRUCTION AND THE INTELLECTUALLY GIFTED: EXPERIMENTS IN PRODUCTIVE THINKING

Martin V. Covington

The use of programed instructional techniques for teaching the exceptional child portends sweeping changes in educational practice and theory. While the implications are extensive for the intellectually gifted as well as the handicapped learner, applications of programing techniques are most immediately obvious in the latter case. The unique characteristics of programed instruction—the tendency toward a depersonalization of the learning experience—may actually prove to be an advantage for some kinds of handicapped learners, such as the emotionally disturbed child who often learns best when placed in an unstimulating, impersonal environment.

In contrast, however, the intellectually gifted child typically does not require remediation of basic skills, such as reading, nor does he usually need special help in mastering factual content areas. Moreover, the unique features of orthodox programing, such as highly directive step by step guidance, are probably least compatible with the sophisticated and individualistic thinking and learning styles of the gifted child. In spite of these considerations, there persists the view that the primary role of programed instruction for the education of the gifted lies in the efficient acquistion of subject matter content at an accelerated rate.

However, such an emphasis seems misplaced, since one of the things that most naturally distinguishes the gifted child is his high facility for rapid assimilation and retention of factual content materials. Moreover, the promise of the intellectually gifted child resides not so much in his facility for the acquisition of facts as in his capacity for productive thought—the ability to make innovative, imaginative use of these facts. And it is precisely here in the area of productive thinking that the least is done to nurture the superior potential of the intellectually gifted. In fact, it has been shown by the author and his colleagues (Covington and Crutchfield, 1965) that children of all intellectual levels, from the intellectually marginal to the intellectually gifted, perform below their capacities for productive thought. This waste, deplorable as it is at any level, is in many ways more critical among the intellectually gifted, because these children have the greatest potential for achieving the highest levels of productive thought.

In what sense, then, are the brighter children potentially capable of the highest level of productive and innovative thought? What kinds of instructional regimen are most likely to insure the greatest realization of this potential? Will programed instructional techniques prove valuable adjuncts to such teaching? These questions will be considered in light of the current program of research being carried out at The University of California in Berkeley.

The Intellectually Gifted and the Potential for Productive Thought

The primary purpose of the Berkeley research program is to develop self-instructional materials to foster productive thinking among elementary school children. It has proven fruitful in this work to view productive thinking as an ongoing, relatively protracted, problem solving sequence where the goal may be the discovery of a workable solution to a practical difficulty, the creation of information where a gap in knowledge has previously existed, or the explanation of a puzzling phenomenon or event.

It has been assumed that there are a number of specific cognitive skills which enter into any complex problem solving sequence. A few of these include the ability to generate large numbers of ideas; the capacity to evaluate these ideas in light of the problem at hand; the ability to reformulate the problem in familiar, more manageable terms; and a sensitivity to detect gaps in the available information and to determine what questions should be asked.

However, above and beyond these separable skills, there is required what can be called a Master Thinking Skill which enables the person to organize and deploy his repertoire of specific cognitive skills in a planned attack on the problem. The productive thinker must at all times maintain a balance between these separate skills. For example, as we have seen, he must possess great ideational fluency, yet at the same time he must have the capacity for disciplined self-evaluation of these ideas. As a further example, he must recognize when it is appropriate to pause in the midst of his work to reconsider or rehearse what he has already learned, suspending for the moment the search for new information which might only confuse and distract.

This, then, is the functional patterning of the component skills which enter into the problem solving process. To be sure, a person can occasionally achieve a limited degree of success by stressing only one of the component skills, such as generating ideas, with little or no regard for their appropriateness, or simply asking lots of questions. However, in order to achieve the most elegant, economical, and appropriate ideas (i.e., solutions) and to do this consistently, the individual must combine these various components in some meaningful and harmonious pattern of research.

It is precisely the intellectually gifted who are most adept at achieving and maintaining an optimal patterning of the separate cognitive skills, and it is primarily for this reason that they achieve more solutions than do less bright children. In fact, it is the disproportionate incident of solutions among the gifted that makes their intellectually less able peers. This point is illustrated by the data gathered in the course of our research program.

Seventy-five fifth and sixth grade children from the Berkeley elementary schools were given a number of tests developed to assess problem solving proficiency among upper elementary school children (Covington, 1965a; Covington, 1966c). The problems reflect a number of the crucial aspects of problem solving, requiring the child to generate ideas, to list questions he believes important in working toward a solution, to reformulate the problem in his own words, and so on. Although these problems are designed to encourage a large number of ideas, there are usually only one or two answers which completely fit the factual and formal demands of the problem. Often the theme of these problems is curriculum related. For example, in one problem the student is to figure out what brought to an end the life of a city which was buried intact in the sand thousands of years ago. Five different kinds of performance indices were tabulated for each student on each of three problems: the total number of questions asked about the problem; the total number of ideas generated, irrespective of their quality; the total rated quality of these ideas; the single highest rated idea, irrespective of the total number given by the student; and whether or not a solution occurred. For every child a composite score was calculated for each of these measures by summing up his performances on the three problems.

Product-moment correlations were computed between IQ scores obtained from school records (California Test of Mental Maturity, 1963 S-form) and each of the selected performance measures for this sample of 75 children. These correlations are listed in Table 1. On the measures which primarily reflect the operation of the separate cognitive skills in isolation, such as the number of questions asked or the sheer volume of ideas generated, it is clear that proficiency is not noticeably related to IQ. Thus, in these instances the less intelligent children are at no particular disadvantage relative to their brighter peers.

Table 1

Product-Moment Correlations between IQ Scores and
Five Indices of Problem Solving Performance

Total Questions Composite	+ .10
Total Ideas Composite	+ .01
Total Quality of Ideas Composite	+ .37 **
Single Highest Rated Idea Composite	+ .40 **
Total Number of Solutions Composite	+ .43 **

** Significant at .01 level.

However, as one moves from such cognitive part functions (reading down the column) to performances which require an effective higher order integration of a number of skills, the magnitude of the correlations between performance indices and IQ increases. This relationship reaches a maximum for the most demanding and complex performance of all, the achievement of a solution. This same pattern is also illustrated by treating the data in a slightly different way. The entire sample was divided into three IQ levels. The highest level had scores of 120 and above (N=30), the middle level scores ranged from 119 to 100 (N=25), and the lowest level had scores below 100 (N=20). Table 2 lists the ratio of the mean score for the low IQ subjects to that of the high IQ subjects on each of the five composite measures. Notice, as before, the brighter subjects are at an increasing advantage as one moves from the operation of the separate skills to the more complex and demanding performances.

Thus, the intellectually gifted children (for purposes of the present discussion, those with 120 IQ and above) are the most likely to discover the solution or at least to have among their ideas ones of especially high quality. In this sense they are capable of the highest levels of productive thought, and it is asserted that this superiority occurs primarily because these children are highly adept at organizing, deploying, and sequencing their particular repertoire of cognitive skills.

Table 2

Ratio of Mean Score for Ss above 120 IQ to Mean Score for Ss below 100 IQ on Each of Five Indices of Problem Solving Performance

Total Questions Composite	1.15
Total Ideas Composite	1.10
Total Quality of Ideas Composite	1.59
Single Highest Rated Idea Composite	1.62
Total Number of Solutions Composite	2.58

One of the most important implications to be drawn from the foregoing is that any productivity training for the gifted should feature direct instruction on the Master Thinking Skill to take full advantage of their considerable initial capacities. In contrast to this recommendation, however, virtually all present attempts to instruct for creative thinking in an actual educational setting feature exercises to strengthen the various cognitive skills individually and in isolation from one another. This "fractionation" approach to the fostering of productive thought is exemplified by Parns and his colleagues (1965). Using a programed instructional format of a linear type, adults are guided through a series of individual exercises devised to increase proficiency in a number of special skills, such as enhancing one's observational powers ("list all the physical attributes of a pencil").

The Paradox of Programing for Productive Thought

The reason for the popularity of such a fractionation approach, especially among programers, is not far to seek. The unique features of orthodox programing lend themselves to the direct elicitation and control of rather simple, limited responses under well controlled stimulus conditions. Thus, we arrive at perhaps the fundamental difficulty inherent in any attempt to foster productive thought by means of programed instruction: the same features which make for efficient learning and retention of subject matter content are potentially the most detrimental to the strengthening of productive thinking. This conflict arises primarily because the goals of efficient learning and those of productive thinking are often in fundamental opposition. For instance, while efficient learning of factual material requires utmost clarity of presentation in small, easily manageable steps, the essential nature of creative thought demands an adroitness in situations where the information load is large or even overwhelming and where often not all the information presented is even germane.

For another thing, orthodox programing techniques impose a high degree of structuring on the material to be learned with an emphasis on close, almost "lock-step" guidance for all individuals. This makes for a homogenization of thought in which each person is led to the same understanding of the same material. In contrast, the essential nature of innovative thinking requires diversity and richness in individual thought processing. And indeed, in the case of the intellectually gifted child, who is potentially capable of the richest, most individualized and sophisticated thought, these procrustean features would seem most detrimental.

New Directions in Programed Instruction

Even with all these negative considerations, there are some positive redemptive aspects of programing which lend themselves to the requirements of training for creative thought. For example, the self-instructing, self-administering features of programing do much to place the focus on the initiative of the student himself and to provide opportunities for meaningful, self-guided discovery, as well as to accomodate the particular cognitive style of the individual learner.

Clearly in the case of teaching for productive thought, a substantial reformulation of orthodox programing is necessary to offset its negative features and yet, at the same time, to preserve its positive virtues. Basically this can be done by avoiding commitment to rigid forms of programing and by inventing new programing techniques. For example, programs should be designed to permit the individual learner repeated opportunities to make creative responses within the context of meaningful tasks—to generate his own questions and ideas, to follow up intuitive hunches, and to develop and pursue his own plan of attack on a problem. The primary purpose in giving direction to the student's efforts should not be the singling out of one correct response, as in the teaching of conventional subject matter, but rather the reinforcement of a range or diversity of responses. What is needed is a kind of creative feedback that is reinforcing for all children, regardless of the particular responses given.

For example, such feedback might consist of a number of ideas, each of which could have been generated in the given problem situation. The composition of these ideas would vary as to their degree of appropriateness to the problem, their degree of novelty, originality, and so on. The purpose of such flexible feedback would be to broaden the child's concept as to what counts as good ideas or insightful questions to ask, or fruitful lines of inquiry—all in preparation for the child to deal more effectively with creative problems outside the context of a specific program. (A more detailed and thoroughgoing consideration of flexible programing techniques is found in Crutchfield and Covington, 1965.)

The Berkeley group has developed a sixteen lesson, self-instructional program dealing with problem solving which embodies the pedagogical principles just outlined (Covington, Crutchfield, and Davies, 1966). This General Problem Solving Program is one in a series of programs focusing on various aspects of productive thinking. Each of the sixteen lessons is a complete problem solving episode in which the reader is called upon to explain or come to understand a mysterious event, such as puzzling happenings in a deserted mansion or the disappearance of a precious water supply from a desert mining camp. The student is led through all the principal steps and processes inherent in creative problem solving, being required to generate ideas, raise questions, check his ideas against the known facts, and finally select from among all his ideas the one he regards as best. As the student progresses through a given lesson, his thoughts are guided into provocative, fruitful lines of inquiry by means of the feedback devices described above. At the same time, he is instructed in the use of a number of helpful thinking strategies pertaining to the reformulation of the problem in more familiar and manageable terms, the laying out of an ordered plan of attack, or the determination of what new course of action to pursue upon receiving additional facts—all facets of the Master Thinking Skill.

Although the General Problem Solving Program was developed especially for fifth grade students of average intelligence and average achievement level, the various experimental tryouts have not been restricted solely to this group. For example, it has been used with a number of sixth grade classes, and deliberate efforts have been made at both of these grade levels to use children of widely different IQ and achievement levels. This has included over 75 children with IQ's above 120.

Each of the main studies to date (Covington, 1965a; Covington and Crutchfield, 1965) has employed the same general procedures and experimental design. Initially, children from a number of classrooms are administered a pretest criterion battery, including tests of problem solving proficiency and tests of creative thinking (Torrance, 1965), as well as inventories measuring attitudes and values toward thinking (Covington, 1966a). Classes are paired on the basis of this pretest data. One class from each pair is then assigned to the instructed condition, while the other acts as a comparison. The children in the instructed condition receive the General problem Solving Program, one lesson per day over a three week (or four week) period.

Several different kinds of comparison groups have been used in order to obtain information about the nature of the training effect (Covington, 1965b). The typical comparison (and the one used in the following analysis) calls for the students to receive a similar, but shorter, self-instructional program. This program contains a serial adventure story and requires the reader to answer questions pertaining to the story content but having no bearing on problem solving or creative thinking. The purpose here is to insure a sense of involvement on the part of these children and to acquaint them with work in such self-instructional booklets. Following the end of the training period, all classes are administered a posttest criterion battery similar in composition to the pretest battery.

Illustrative Data

Now let us consider some representative posttest data from 89 untutored fifth and sixth grade children and a comparable group of 112 instructed children matched for pretest performance. This data will serve to illustrate the effectiveness of the General Problem Solving Program, as well as to point up several implications for the training of productive thinking among the intellectually gifted. The specific criterion task selected for discussion here is a measure of the student's ability to suspend his beliefs and assumptions about present realities and to entertain as temporarily real an improbable or hypothetical situation. Such a process of "just suppose" is central to all innovative thinking which often involves a thoroughgoing exploration of the consequences which follow from imaginary systems. Indeed, it has been argued elsewhere (Covington, 1966b) that elementary school children of today who are taught to invent and then to explore artificial, hypothetical systems will have a greater potential for innovative thought in their adult years, when most presently accepted social and scientific systems will have long since become outmoded and obsolete.

The particular "just suppose" problem (adapted from Guilford, 1961) requires the student to think of all the consequences of every person in the world suddently becoming totally and irrevocably blind for the rest of his life. As a second part of the problem, the reader imagines what kind of new inventions might be created under these highly improbable circumstances. For brevity's sake, we will consider only the data from the consequence section of the test, since the results on the creation of inventions are highly similar in all respects. As to the general performance of the students, a majority dealt almost exclusively with the immediate short term results of everyone's going blind, such as cars and people crashing into each other, and the like. A minority of children went on to consider more profound, long term changes which would presumably affect both society at large as well as individuals, such as an increased demand for braille teachers, the possibility of a breakdown of the monetary system because of an increased use of counterfeit money, or the possibility that there would be a general increase in the acuity of the remaining senses of touch, smell, and hearing.

Each idea given by every child was rated by three trained judges on a four point scale as to the degree of insight and novelty and the level of profundity shown. Table 3 shows the mean number of consequence ideas obtained by the instructed control groups divided into the three IQ levels described previously. The means for the total rated quality of these ideas are shown in Table 4. The t test values for the comparisons between the instructed group and the control group, both summing all IQ levels and within each IQ level, are listed in both tables.

An overall analysis of variance performed on the data summarized in Tables 3 and 4 indicated in both cases that the training and the IQ main effects were highly significant. For the number of ideas index (Table 3), the training x IQ interaction effect did not reach significance, whereas in the case of the total quality of ideas (Table 4) it was highly significant.

Table 3

Mean Number of Ideas Generated on the Consequence Test for the Instructed Group and for the Control Group by IQ Level

	N	Instructed	N	Control	t Ratio
Total Sample	112	10.21	89	7.69	3.50**
Low IQ (99 and below)	40	6.90	28	5.43	1.35
Middle IQ (110-119)	33	10.12	27	7.96	1.87
High IQ (120 and above)	39	13.74	34	9.32	3.98**

**Significant at .01 level.

Table 4

Mean Quality Ratings for the Ideas on the Consequence Test for the Instructed Group and for the Control Group by IQ Level

	N	Instructed	N	Control	t Ratio
Total Sample	112	14.19	89	9.54	4.18**
Low IQ (99 and below)	40	8.08	28	5.82	1.71
Middle IQ (100-119)	33	13.33	27	9.67	2.36*
High IQ (120 and above)	39	21.26	34	12.50	4.82**

*Significant at .05 level.
**Significant at .01 level.

It is clear from Tables 3 and 4 that the magnitude of the training effect summing all IQ levels is in the range of being educationally significant and useful. These results are especially impressive when it is realized that there was no direct training for such consequence type thinking anywhere in the General Problem Solving Program. Hence, this particular test illustrates, among other things, the rather broad and pervasive generalization effect accruing from the training. Another point of considerable pedagogical importance is that the increase in the number of ideas for the instructed group was not obtained at the expense of the quality of the ideas. In fact, the mean quality rating per idea is slightly higher for the instructed children than for the control children, being 1.39 and 1.24, respectively.

These data also serve to amplify some earlier remarks about the unrealized potential of the intellectually gifted. In the first place, it is clear from examining the performances of the untutored control children in Tables 3 and 4 that the intellectually gifted children are capable of producing not only the largest number of ideas but also the most insightful, profound ones. However, even with such superior performance, these children are still operating considerably below their capacity for creative output. In an absolute sense, their performance is quite low.

The extent of this depressed level is illustrated by the fact that short term training for less bright children can completely override the initial advantages of the gifted group. In this particular case, the posttest performance of the middle IQ instructed children for both total ideas and for total quality of ideas surpassed that of the gifted control group. In fact, on some criterion problems which are quite similar to the kinds of exercises used in the training program, the performance of the low IQ instructed group is actually found to equal that of the intellectually gifted controls! The implication to be drawn here is that simply because they are exceptionally bright to begin with does not insure that gifted children will make optimal use of their capacities. In order to capitalize on their superior intellectual talents, it is necessary that the gifted be given proper instruction and guidance. When this is done, considerable gains can occur, represented in this case by the performances of the high IQ instructed children as compared with the performances of their control counterparts.

In closing, several qualifications need to be made about the specific data just cited and about the larger program of research. First, with respect to these data, it should not be assumed that the degree of superiority of the high IQ instructed group over their controls represents the maximum improvement possible. If anything, these margins serve only to indicate the minimum gains which could be expected from training. In this connection, it must be recalled that these results were achieved by a modest, short term program which was initially developed for children of average intelligence, achievement, and interest levels. A more extensive program covering a whole school year, increasing in scope and complexity as the student progresses and designed to capitalize on the initially superior intellectual level of gifted children, should make for even greater gains than those found among these data. Indeed, the cumulative effect on the child's problem solving proficiency and productive thought might be extraordinarily impressive.

Second, the present series of research studies has demonstrated that programed instructional procedures, considerably modified to meet the requirements of teaching for productive thought, hold promise as a valuable pedagogical tool. However, it is recognized by this writer that these present data are important, not so much because they demonstrate the unique value of a specific training program or pedagogical approach, but rather because they indicate new directions for inquiry and further research. What is urgently needed now is the development by many investigators of a number of approaches for teaching productive thought, since no one approach alone could possibly do justice to the complexity of the human creative impulse.

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THE RIGHT KIND OF PROGRAMING FOR THE GIFTED

John Feldhusen

Most teachers find it difficult to obtain or develop suitable instructional materials and techniques for gifted children. The teacher's task is probably most difficult when she must simultaneously provide materials for gifted, average, and slow learners who are all enrolled together in a single classroom. The teacher of a special class for the gifted can concentrate all of her attention on finding or developing materials and techniques just for the gifted, but the teacher of a mixed class has to search at three or more levels of student ability. More often than not, the teacher of a mixed class concentrates her search at the level of the average learner and merely does token searching at the level of gifted and slow learners.

The teacher of a special class for the gifted might also find several discernible levels of ability in the class, and she might also seek instructional material suitable to each level. A three way division is sometimes proposed, whereby the gifted are divided into the academically talented, the gifted, and the unusually gifted. Other terms may be used for these groups, but there is some agreement that the IQ range for the academically talented is approximately 110 to 120, the range for the gifted is approximately 120 to 150, and the range for the unusually gifted is approximately 150 upward. An argument can be advanced that special materials and techniques are needed for gifted children at each of these three levels, but few teachers would regard this as being as necessary as the provision of suitable material for children at each of the three broader levels of gifted, average, and slow learners.

The teacher's task of finding suitable instructional materials and techniques for the gifted is even more difficult if she is guided by some of the new concepts of student abilities which have emerged in the last decade. The new concepts of intellectual ability (Guilford, 1959; Torrance, 1966; Barbe, 1965) force the teacher to recognize mental abilities of many different types. These special abilities may be regarded chiefly as aptitudes which should be taken into account in organizing instruction, because of their relative facilitating effect on learning. They may also be regarded as identifying learning objectives in the form of special abilities which should be nurtured through instruction. The teacher who seeks instructional material for the gifted is most likely to be influenced by the new concepts of special abilities in the area of so called creative abilities.

Furthermore, the multiple concepts of abilities have emerged simultaneously with new conceptions of the end products of learning. The new concepts of the end products of learning are likely to stress multiple ends and varying cognitive levels of learning outcomes. The taxonomies of Bloom (1956) and Krathwohl (1964), the ends described by Gagné in The Conditions of Learning (1965), and the products described by Guilford (1959) are all illustrations of ends of learning which are multiple, complex, and arranged in a cognitive hierarchy. Add to this the kind of abilities which should be learned from discovery learning or inquiry training (Suchman, 1962), and one begins to be overwhlemed by the complexity of student abilities and learning outcomes with which he must deal, not to mention other personal characteristics of pupils and teachers and environmental conditions which may affect the learning process. How lovely, simple, and deceptive are those terms "entering behavior" and "terminal behavior" which are so often used by programers.

The complexity of the problem of organizing instruction for gifted children is also heightened by their special characteristics. Most texts on the gifted (Gallagher and Roggs, 1966; Torrance 1966; Barbe, 1965) list a number of such characteristics as the following:

1. The gifted child is ahead of his peers in basic achievements in school.
2. He has superior intellectual ability in such functions as abstracting, conceptualizing, generalizing, and reasoning.
3. He has keen memory for information and ideas.
4. He has superior verbal abilities.
5. He has unusual ability in structuring, organizing, and integrating ideas.
6. He has superior ability to evaluate ideas (critical thinking).
7. He has heightened ability to formulate goals and to persist in efforts to attain them.
8. He is able to work independently, to guide and correct himself, and to concentrate for a long time.
9. He is able to learn rapidly and in large chunks.
10. He is able to derive satisfaction from intellectual attainments.
11. He has a good sense of humor.

All of the things I have said so far lead me to conclude that everything about the teaching of gifted children is extremely complex and varied. These students have a broad variety of special abilities and characteristics which affect their learning, and they develop personal styles of learning (Gallagher, 1964). We expect them to achieve a multitude of objectives. Clearly, it seems unlikely that one type of instructional tool will serve all the gifted students well. Our task may be, instead, to find as many instructional techniques and media as possible to meet the needs of gifted children.

One technique which has unusual potential as an instructional mode for gifted children is programed instruction. Its peculiar usefulness in teaching gifted children has been noted (Feldhusen, 1963; Hanson and Komoski, 1965). Most of the programs which have been developed are of the simple linear style involving small steps, blanks to fill in, much prompting, and immediate feedback of right answers. Such material at first glance looks ridiculously bad for gifted children. However, adaptations have appeared which look more promising, for now it appears that the right kind of program for the gifted would have the following characteristics:

1. There should be a statement of the learning outcomes (objectives) which the material is designed to produce. The description ought to employ familiar terminology from one of the more well known taxonomic systems, such as the Taxonomy by Bloom and others (1956). For gifted youngsters, we will want to be assured that the program offers instruction at an appropriately advanced achievement level. We would also like to know if the program affords instruction at the higher cognitive levels such as analysis, synthesis, and evaluation in the taxonomy. The latter would be uniquely appropriate for the gifted.

2. The learning outcomes which the program is designed to teach should be revealed to the gifted student in the programed material. There should be a substantial effort to help the student understand and remember what he should be learning. The purpose is to capitalize on the unusual ability of gifted students to identify and pursue a learning goal. The purpose is also to enable the gifted student to understand what he is to learn so that if the programer fails, the student may find a way to compensate. The gifted student's unique style of learning enables him to call up auxiliary techniques of learning.

3. There should be evidence that the program is efficient in producing learning for gifted youngsters in relation to the objectives which are specified. Evidence that it produced learning for a homogeneous mass of slow, average, and bright students is inadequate. It would always be easy for the program developer to provide this information. The field trial of the program should be designed to secure both performance and IQ data on the students.

4. There should be a minimum of repetition, review, and mnemonic features, or it should be possible to bypass these things. The good memory of the gifted child makes them unnecessary much of the time. The simple repetition often used in linear programs is obnoxious for gifted students.

5. The programer should use a larger vocabulary and a higher reading level and should call for complex verbal responses. The superior verbal ability of the gifted makes these adaptations necessary. Ordinarily it will be only the complex verbal or numerical activities related to higher level cognitive objectives that the student will write.

6. If short responses such as filling blanks are required, the response mode should be covert or vicarious to permit the gifted student to move more rapidly. This feature also permits and encourages him to operate mentally. Short verbal responses which are written as responses in highly prompted and repetitious frames may actually encourage a kind of nonthinking response. They would also tend to break up effective thought sequences. Thus, it seems likely that most of the time the gifted student should merely think this kind of response. However, a good program for the gifted should not have much of this short answer responding.

7. The programer should concentrate on student activity or responses in which there is some real challenge, some real need to think, some real possibility of error. The programer should not call for a response which is obvious or easy for a gifted youngster. If the gifted child finds the program too easy, he might come to think the programer is an idiot. If there is danger that the challenge will be too great and the student might fail, the programer can offer branching assistance or hints to help the student respond.

8. The steps of the program should be large in terms of the amount of information, instruction, and response covered in each. As a rule of thumb, paragraphs or larger units should be used. Straightforward, clear explanations and illustrations will serve most of the time.

9. It should be possible to administer the program individually and at individual rates, but it should also be possible to pace the student, to speed him up, or to administer the program to a group of gifted children. Gifted children sometimes need a push to get them to operate at capacity. The evidence from research indicates that most children learn just as well when they are paced as when they work at individual rates.

10. The gifted student will be uniquely able to judge the adequacy of his own responses in the program. Thus, the programer can call for complex responses and can expect the student to be able to judge his production against a model or standard offered by the programer. The gifted student should also be taught how to become more efficient in judging the adequacy of his own performance.

11. Reinforcement or encouragement may be offered extrinsically in some form by the programer, but it should be limited to instances in which the student performed well or correctly in a challenging task. Increasingly, the gifted student should find intellectual satisfaction from his own observation that he has finally mastered a task to be learned, has solved a problem, or has discovered an important principle.

12. The programer should avoid excessive preoccupation with sequencing or organization of information and steps in programed instruction. We will not argue for planned disorganization. However, gifted students have unusual ability to organize information to derive understandings (Ausubel, 1963). They organize ideas to fit their own cognitive structures. They should retain and develop their skill in sequencing and organizing ideas. If a programer seeks the ultimate order and thinks the gifted student can learn in no other way, he is wrong. Some gifted students who are also creative or original will even produce unique associations, sequences, or groups of ideas which amount to discoveries.

13. Above all, good programing for the gifted ought to "grab" them by capitalizing upon their heightened sense of humor. Robert Mager (1965) suggested in his NSPI presidential address last year in Philadelphia that most instruction generates avoidance tendencies. The Sullivan programed reading, however, captures kids because it is funny and because kids discover that the programs really help them learn. Programs which we developed this year have gone over well with bright fourth and fifth graders because of humor in the presentation and in the activities. These programs were designed to teach some elements of creative thinking on radio. Printed exercise materials were also used. A great amount of humor was employed throughout the series of 28 short programs. The sophisticated humor in Markle's Good Frames and Bad (1964) gets through to bright graduate students. Gifted children are highly responsive to humor. Good programs for the gifted could be more effective if they were designed to be funny in ways that are appropriate to the sophisticated sense of humor of the gifted.

Teachers are aware that they need a greater variety of instructional materials for the gifted than they need for average and slow learners. In part, the need is for instruction at higher achievement levels in mathematics, reading, language, and study skills. In part, it is for supplementary and higher level subject matter. Above all, it is a need for instructional material that will be designed to capitalize upon the unique abilities and characteristics of the gifted and will help them to learn as much and as well as they can as rapidly as possible. The right kind of program for the gifted will be eagerly accepted and used by their teachers.

Two of my colleagues at Purdue University have developed substantial and integrated programs of instruction which are effective in meeting the needs of average and gifted learners. Senesh's (1964) excellent program represents a carefully planned, organized, and integrated program of instruction in economics for the primary grades. It has many but not all of the characteristics of the right kind of programing for the gifted. Postlethwait's (1964) "auto-tutorial" system, designed especially for instruction in the sciences, is proving uniquely successful with both bright and high average learners. The auto-tutorial system is particularly effective in motivating bright students, in capitalizing upon their ability to identify and pursue learning goals, and in teaching bright students how to organize and carry out their own learning activities.

My own efforts to develop instructional material for bright and creative children in the elementary school represent minor efforts in comparison with the work of these people. I have also done some programing of material in educational psychology for undergraduates in a teacher education course. The average IQ of these students is 120. While I am by no means satisfied that I have come close to meeting the standards set forth in my 13 characteristics of the right kind of programing for the gifted, the feedback we have received from students' personal evaluations and our research on the instructional effects of the programs convince me that the 13 points represent desirable ends toward which we should strive in developing programs for the gifted.

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EMPLOYMENT STATUS AND CHARACTERISTICS OF HIGH SCHOOL DROPOUTS OF HIGH ABILITY: PRELIMINARY REPORT NUMBER THREE

Joseph L. French

Our country's freedom and security are threatened when its youth are not educated to their maximum potential. The tremendous waste involved when a boy or girl drops out of school prematurely affects all citizens in the form of increases in welfare costs, crime and juvenile delinquency, unemployment, and many other burdens to our economy. The greatest loss, however, is to the individual who is restricted in development and whose contribution of talent to our way of life is thereby reduced. The restriction of self-realization that accompanies withdrawal from school before a student's capability for entering an appropriately high vocational activity is one of the most devastating aspects of the nation's dropout problem. Too often these dropouts are youth who are disadvantaged in other ways, also.

Even though school holding power is better today than it ever has been, about 25 to 30 percent of the secondary school population in the US withdraw without graduating. Of every 1000 pupils enrolled in fifth grade in 1924-25, 302 graduated from high school. The situation has changed dramatically in 30 years. Of every 1000 pupils in the fifth grade in 1954-55, 642 graduated. The secondary schools more than doubled their holding power in that 30 year period. The holding power has rather steadily improved at the rate of 2 or 3 percent a year. Of course, the holding power varies by state and within each state. It was reported in summaries of the literature that, of dropouts, about 11 percent have IQ's of 110 or more. That some dropouts have IQ's of that magnitude is a surprise to many laymen. Based on the figures just given, each year more than 80,000 youth who have IQ's within the top 25 percent of the population, who have the scholastic potential for higher education and the occupational potential for a job requiring relatively high level intellectual powers leave school before graduation.

Too long have dropouts been considered a homogeneous group. From recent surveys, it has been concluded that 11 percent of current dropouts have IQ's of 110 or above, 50 percent have IQ's between 90 and 109, 20 percent have IQ's between 80 and 90, and 19 percent have IQ's below 80. While the median IQ is about 90, many laymen and some professionals consider all dropouts to have IQ's below 95. Very little information has been collected about dropouts of specified intellectual levels.

A study to ~~answer some of the~~ questions raised by a review of literature in the winter 1965-66 Vocational Guidance Quarterly is underway in Pennsylvania. The study involves youth with recorded IQ of 110 and above who have withdrawn from school before completing grade 12 during the 1964-65 academic year and was designed (a) to determine their employment status, (b) to determine their pattern of interests and personality, (c) to suggest occupational fields for which training programs should be developed, and (d) to provide data from which an instrument can be constructed for identifying students who will benefit from the proposed training programs.

A sample of 125 boys and 80 girls has been drawn and the Minnesota Vocational Interest Inventory, The High School Personality Questionnaire and a modification of the Student Information Blank are being administered and an interview conducted to search for real reasons for withdrawal from school and attitudes toward work. A group of persisters from the same schools is being selected, tested, and interviewed for comparison purposes. Friends of the dropouts are being interviewed to gain additional insight into the interests and personality of the dropouts.

The total project will not be completed for five months and, therefore, the results reported today will not be the same as those in the final report. The first phase of the Pennsylvania Statewide Study is complete, and the data which follow are based on the returns of all but a few of the schools enrolling students in grades nine through twelve. The data in the tables which follow have been summarized at various times near the completion of the general survey and the total number of subjects in each set of data will vary slightly in this preliminary report.

Based on a composite figure derived from the literature, Pennsylvanians could expect to find 4,000 of their very intellectually able high school students withdrawing without graduating from high school. The recent campaign to reduce dropouts seems to have been especially effective in Pennsylvania, for a definite decrease in the number of dropouts has been noted. Only a few years ago, 27 percent of all students entering the ninth grade in Pennsylvania failed to graduate. Now only 20 percent of this group fail to graduate. Comparative data are difficult to obtain, but studies of Pennsylvania dropouts were conducted for the 1956-57 and the 1962-63 school years. These data are found in Table 1. You will note that in the 1956-57 school year, 36,686 students withdrew without graduating; but in the 1962-63 school year only 23,723 withdrew even though more students were enrolled in the latter period.

Table 1

Reasons for Withdrawal without Graduation in percent

	All IQ Levels		IQ's 110 and above	
Category	1956-57*	1962-63**	1964-65***	
Over 17	39.2	61.5	54.2	56.4
General Work Certificate	38.3	19.9	23.5	10.4
Domestic Permit	12.1	11.6	1.2	28.9
Committed to Institution	6.8	3.9	3.5	2.5
Entering Armed Forces	3.6	3.0	12.3	0.1
Other			5.3	1.7

*N = 36,686 **N = 23,723 ***N = 1,699

Our data are for the 1964-65 year and are based only on dropouts with IQ's of 110 and above. Instead of an anticipated 4,000 students, we found only approximately 1700 students meeting our criteria. Previous investigators classified the reason for withdrawal according to the six categories listed in Table 1. Instead of asking the personnel in the secondary schools to force their reason into a given category, we asked them to state the reason for withdrawal. We have attempted to classify those reasons and you will find them listed in Table 2. For comparison purposes, we tried to force the categories of Table 2 into the categories in Table 1.

Table 2

Reasons for Withdrawal before Graduation Provided by School Personnel
(1965 Survey)

	Male		Female	
	N	Percent	N	Percent
To Get a Job (employment certificate)	178	23.5	98	10.4
Needed at Home (exemption permit)	9	1.2	39	4.1
Passed Required Age	288	38.1	124	13.1
Military Service	93	12.3	1	.1
Had Failing Grades	24	3.2	6	.6
Didn't Like School	38	5.0	19	2.0
Was Asked To Leave	31	4.1	4	.4
Pregnancy	0	0.0	233	24.8
Marriage	29	3.8	379	40.3
Illness	11	1.5	23	2.4
Institutionalization	15	2.0	1	.1
Other*	32	4.2	11	1.2
Unknown**	8	1.1	5	.5
	756		943	

*Speech difficulty, religious beliefs, family fight, etc.
**"I wish I knew," etc.

You will note that differences seem to exist for the sexes in the IQ category studied. Most of the school personnel agree with us that most of the categories used for classifying dropouts are misleading. Nevertheless, these are the reasons that have been given. Perhaps there are more students entering the armed forces due to the conflict in Viet Nam, or perhaps the percentage is larger because more of the students in our study are more able to qualify for service. (Parenthetically, let me note at this point that a number of the men in service are receiving training that may be helpful to them when they are discharged, and I wonder if this opportunity for vocational training has been explored thoroughly enough.)

You will note in Table 2 that 38 percent of the males withdrew because they passed the age of required attendance. This really does not tell us very much. It is our hope that through our interviewing, we will discover some of the real reasons for their withdrawal.

At the present time, we have gained the services of approximately 70 school psychologists and guidance counselors who by their professional training are adept at interviewing. They are in the process of administering a personality test, a vocational interest test, and a biographical data blank, all of which should be of considerable help to us. In addition to the testing, they are following a flexible interviewing schedule which we hope will bring some of these real reasons into focus.

You will note that, of the females, approximately 65 percent withdrew because they were either pregnant and/or intending to marry or were already married. This percentage looks large and so does the number 612. Quite frankly, I was surprised to see figures of this magnitude. In looking at the total population of females in Pennsylvania secondary schools, we can observe that only .77 percent of the girls in Pennsylvania with IQ's of 110 and above are accounted for in these two entries in Table 2. In comparing these data with some data collected by the Department of Public Instruction a year ago for the total student body, we find that pregnancy is found half as often among those girls with IQ's of 110 or above as with girls with IQ's of 109 and below. These figures were computed on a proportional representation and based on the assumption that 75 percent of the population will have IQ's of 109 and below. When viewed in this context, we need to recognize that although pregnancy and/or marriage accounts for two-thirds of the female dropouts with IQ's of 110 and above, pregnancy and/or marriage occurs much less frequently among high school girls with IQ's of 110 and above than among girls with IQ's of 109 and below.

Our preliminary data suggest, however, that these girls, as well as the men, are anxious to secure employment. Although many find employment impossible now and others are reluctant to participate in our testing and interviewing, they are very interested in the problems of labor and in improving their potentiality for employment. These girls present problems quite different from single or married men in attending and profiting from training programs.

Perhaps it should be pointed out at this time that the 1,700 students located in this survey represent only .25 percent of the total school population in Pennsylvania. In contrast to the literature cited above, only 5 percent of the dropouts in Pennsylvania have IQ's of 110 and above. Five percent is the lowest percentage recorded to this date.

Before leaving Table 2, let me mention that the reason listed on school records is not necessarily the reason given by the student. Some were asked to leave, and others gave reasons very different from the ones on record.

In Table 3 you will find in the last two columns the last grade attended by the dropouts of our survey and some comparative data from estimates of last year's enrollment and statewide dropout study conducted during the 1963-64 year without any reference to IQ. It is clearly evident that the brighter students stay in school longer.

It should be noted that in the general population, more males than females withdraw from school without graduating. However, in our study considerably more females withdrew. This reversal was not so evident in Philadelphia as in the remainder of the state. In the rest of the state, nearly twice as many females as males withdrew.

Enrollment by curriculum is summarized in Table 4. To obtain comparative data for all students enrolled in the secondary school, we had to go back to a 1959-60 school year census. It may be a surprise to find that approximately 11 percent of the Pennsylvania high school students are enrolled in a vocational curriculum and that 47 percent of the high ability dropouts, but only 28 percent of all dropouts, are from the vocational curriculum. Perhpas these figures suggest a need to make additional provision for individual differences in these courses.

Table 3

Pennsylvanians Listed by Last Grade of Enrollment

Grade	1964-65 Enrollment			All Dropouts 1962-63		Dropouts 110+ 1964-65			
		Males	Females			Males		Females	
	N	Percent	Percent	N	Percent	N	Percent	N	Percent
9	164,664	50.78	49.22	3024	15.1	27	3.5	36	3.8
10	165,654	50.43	49.57	7380	37.0	168	22.4	192	20.3
11	155,779	50.08	49.92	5889	29.5	297	39.5	380	40.3
12	152,792	49.72	50.28	3674	18.4	259	34.6	336	35.6
						751		944	

Table 4

Curriculum Enrollment for Grades 9-12

	All Students	All Dropouts 1962-63				Dropouts IQ 110+			
	1959-60	Males		Females		Males		Females	
	Percent	N	Percent	N	Percent	N	Percent	N	Percent
College Prep	38.3	502	5.1	406	5.7	135	22.7	227	27.5
Commercial	25.1	678	6.9	2662	37.4	43	7.3	421	51.0
Vocational	11.4	2780	28.3	683	9.6	279	47.0	150	18.2
General	25.2	5315	54.0	3032	42.6	124	20.9	16	1.9
Other		550	5.6	335	4.7	13	2.1	12	1.4
						594		826	

It is a surprise to some to find that 25 percent of our secondary students are enrolled in a commercial curriculum and that, among the girls, 51 percent of the dropouts were enrolled in that curriculum.

In some of the literature, you will find that transfer of schools is frequently suggested as a means of identifying a potential dropout. In our study, we found that only 29 percent of the males and only 33 percent of the females transferred from one school to another.

Now let us look at Table 5. In Table 5 you will note that approximately 46 percent of the males and approximately 48 percent of the females who graduate from Pennsylvania secondary schools enter some kind of postgraduate educational program. It is quite possible that in a followup a short time from now, we will find that a number of our dropouts have entered some kind of post secondary school. In fact, in the limited amount of followup we have accomplished so far, we have found several students already enrolled in colleges.

And now as you look at armed forces, you will see why I was concerned about this situation. The school records suggest that less than 12 percent of the males withdrew from school to enter military service. It was revealed in our initial survey that approximately 24 percent were in military service; and now as we attempt to follow up the students for additional interviewing, we are finding even more students away from home and in military service. This has posed a difficult research problem for us. As yet, we have not found a way of testing and interviewing those who have moved from Pennsylvania.

You will note that the next highest category for employment of males is either "factory work or trades." This figure may be somewhat inflated, since those that listed apprentice training were classified in our original tally as in factory work or trades. This survey presents several problems. Perhaps the greatest problem in determining employment status involves the time of reporting job classification. Eighty-five men are listed as "remaining at home." It is too early to report any firm data, but practically all of those contacted in the second stage of our project are employed, with the exception of a few who are institutionalized or mentally ill. Perhaps that is due to a certain shift in the job market to make employment somewhat easier. On the other hand, among those we have tested, we find that many have not remained on the job that they accepted upon high school termination. We expected them to exert some upward mobility, and we expect them to profit from training programs that are established. A survey of job classifications next year may give more insights into the employment problems of bright dropouts than has this survey.

We could not wait for all tests to be completed and as a result, we have prepared an analysis of the first 50 dropout and 50 persister profiles from the High School Personality Questionnaire for both boys and girls. The greatest discrepancies between male dropouts and persisters were found in dispositional traits labeled E and F on the profile. Our male dropouts are significantly more assertive, independent, self-assured, rebellious, competitive ($\underline{P} > .05$), cheerful, expressive, frank, happy go lucky, and talkative ($\underline{P} > .01$) than the persisters. On the "intellectual" scale from this personality test, the male dropouts recorded slightly but significantly lower scores than their counterparts with matching IQ's. From the overall profile, the male dropout of high ability could be described in the following terms.

He is a happy go lucky fellow who is interested in people. Although he tends to be easy going, his actions are marked with deliberateness and his speech, with frankness. His profile does not suggest disinterest in school and much that school represents, but it does indicate that the conforming nature of the school setting might create a stumbling block for him. And his overall response pattern would suggest that he falls well within normal limits with regard to his mental health (neuroticism, anxiety, etc.). He is, from all indications, a fairly sound individual.

Table 5

Postschool Activities

Activity	1963-64 Male H.S. Graduates N	1963-64 Male H.S. Graduates Percent	1964-65 Male Dropouts of High Ability N	1964-65 Male Dropouts of High Ability Percent	1963-64 Female H.S Graduates N	1963-64 Female H.S Graduates Percent	1964-65 Female Dropouts of High Ability N	1964-65 Female Dropouts of High Ability Percent
College or University	14,048	27.8			8,542	17.3		
State College	4,012	7.9			4,435	9.0		
Vocation or Trade School	2,527	5.0			1,710	3.4		
School of Nursing	56	.1			3,641	7.4		
Business School	1,045	2.1			3,079	6.2		
Other Schools	1,427	2.8			2,031	4.1		
Postgraduate	290	.6			159	.3		
Armed Forces	7,606	15.0	124	23.7	276	.6	1	.1
Store Employment	2,013	4.0	19	3.6	2,643	5.3	16	2.2
Office Employment	1,139	2.3	9	1.7	9,903	20.0	10	1.4
Factory Work or Trades	4,794	9.5	115	21.9	2,401	4.8	38	5.2
Apprentice Training	943	1.9			108	.2		
Agriculture Work	1,305	2.6	22	4.2	25	.1	0	
Other Employment	3,820	7.5	63	12.0	2,190	4.4	38	5.2
Remaining at Home	2,593	5.1	85	16.2	4,901	9.9		
Married							444	60.4
Unemployed							140	19.0
All others	2,994	5.9	18	3.4	3,467	7.0	4	.5
Unknown			69	13.2			44	6.0
	50,612	100.1	524	99.9	49,511	100.0	735	100.0

The female dropouts do not appear to differ in most respects from the female persisters. From the test data, we conclude that the female dropouts are less impulsive than are the matched persisters, tending to be more prone to act on practical, logical evidence.

The female dropouts, as a group, tend to be emotionally mature, expressing themselves behaviorally in a composed, confident, and basically calm fashion. They are more introspective than extroverted, although they are interested in people around them. A tendency to be individualistic and self-sufficient is present. They differ from the male dropouts in that they are somewhat more emotionally mature ($\underline{P} < .05$), less impulsive ($\underline{P} < .05$), less aggressive ($\underline{P} < .05$), less dependent upon social approval ($\underline{P} < .05$), and are far less extroverted and expressive ($\underline{P} < .01$). You should recall that most of them were married when the test was used.

A problem in preparing a paper such as this and many papers about the gifted involves trying to generalize about a heterogeneous group. Listen to these reactions to a question about how schools could be improved.

A male who left school because he was needed at home but was soon employed as a clothes sorter for a linen service said, "I am in the U.S. Army, I have just completed a high school equivalency course, and I am waiting for the results. As far as I am concerned, the schools in _________ do not need any changes. It is not a school's fault, if a pupil learns very little. He (the pupil) has to be interested, and want to learn. The schools are doing their primary job. They supply books and teachers, and the pupil has to make the best of them."

From a male who left because he wanted to get a job and was employed in a greenhouse and drove a truck, we hear, "I believe one of the main troubles in the school system is the lack of good judgement in the hiring of teachers and administrative personnel. When they bring a teacher into the system they don't go deep enough into his personal background. Some of the most psychotic human beings I have ever met have been in a school room. These teachers not only undermine the education in the classroom, but they harrass and psychological upset the children and young adults at an age when they cannot retaleate. Periodic checks should be made, not only written, but oral, to see if teachers are fit to be in such a position. Thank you for giving me this opportunity to let you know how I feel."

And from a female who left because she did not like school and is now employed as a photographic technician, "I feel the two main problems in todays schools are the overcrowded classrooms, and the lack of dedication and disinterested attitude of the teachers. Classes today are so large that the students have little chance to get individual attention for their special problems. By the time attendance is taken, assignments are given out, and things are organized, there is little time for study of the subject itself. Children who find it difficult to study or are slow learners are left behind or forgotten and soon loose interest. Consequently, failing the subject; whereas, the quick learner is easily bored and disgusted. If classes were smaller or divided according to learning ability, the teachers could get to know the students as people with different interests and problems, and in many cases, find out why the children find it difficult to learn a certain subject. If the teachers would take a little more time and interest, and show the students that someone cares about them and how they are getting along, the students would try a lot harder and get better grades. Some people just don 't have the ability, but many more have it and don't use it. What's the use of trying if no one notices or cares about your efforts? I know I never would have left school if my teachers and principal had listened to me and tried to understand why I found a subject so difficult. If they had helped me instead of lecturing, I would be a graduate today. I only had four weeks to go."

At this point, our vocational interest tests, biographical data forms, and interviews have not been summarized and analyzed, and our analysis of the personality test data was for one-half of the sample only. However, from the data we have tabulated and from listening to many subjects, a number of educational implications are apparent.

Current campaigns to keep dropouts in school are working and both dropouts and persisters verbalize that dropouts have more difficulty getting and keeping jobs. A major difference between our dropouts and persisters is in their perception of parental attitude. Our persisters feel that their parents force them to stay in school, but our dropouts feel that their parents wanted them to stay in but did not force them to do so. If it is really important for students to complete the secondary school, attention must be directed to parental attitude and behavior.

If schools are to better meet the needs of all bright youth, some changes must be made. Some potential dropouts are being paid $1.50 an hour to stay in school. If we do not change some school activities or possibly the attitude of youth toward school, we may have more trouble in schools than when it was easier to drop out.

The high dropout rate of high ability students enrolled in vocational and commercial courses suggests a need for attention to these curricula now. Too often they have been neglected by educators concerned with the gifted. Many vocational and technical but nonprofessional jobs are highly important in our society; and bright, efficient workers are badly needed. Channeling all youth with IQ's of 110 and above into traditional college programs will be a mistake. We need to become concerned about the bright adolescent with nonprofessional aspirations.

The high incident of pregnancy and early marriage in our sample suggests a need for constructive and positive attention toward sex and marriage education. Although it seems to be true in some instances, the data do not support the generalization that early marriage among our females is a hostile reaction toward parents. With an increasing proportion of young women entering the labor market, attention will need to be directed to preparing young mothers for the maximum utilization of their talent.

Many of our dropouts want to go back to school, but the social pressure of being in classes with younger adolescents keeps many of them from returning. The evening school or community college program may hold considerable promise, but so far little attention has been directed toward their resources for dropouts of above average ability.

Obviously, some attitudes are too well fixed to modify in a short period. Even communicating with "frank and independent" adolescents presents quite a problem for adults. However, many of our dropouts would like to tell of their disillusionment and problems. Perhaps some of the bright dropouts could be effectively utilized in a prevention program. Other dropouts recommend entering the labor force briefly to develop an appreciation for school. If this approach is attempted, integration of dropouts into an educational program will need considerable attention.

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THE IMPLICATIONS OF THE QUALITATIVE ASSESSMENT OF INTELLIGENCE AND CREATIVITY

Ruth A. Martinson

During the past decade, hundreds of articles and books have been written on human abilities. These writings have accompanied the increased interest in gifted individuals and accelerated concern for the improvement of school programs in general. Some of the better publicized studies in creativity have included statements which served to develop skepticism about our abilities to identify gifted young people or to assess their capacities meaningfully.

The predominant opinions during the early 1960's were those of individuals who utilized certain tests of divergent expression or tests of such abilities as fluency, originality, or speed of response. The results of these tests were then grouped together and were called tests of creativity. The performance of groups of pupils on these tasks was compared to the performance of the same groups on intelligence measures, and the relationships were found to be low and extremely variable. Some individuals who were relatively low on intelligence measures turned out to have extremely high capacity on the creativity measures. A generalization then appeared which was of comfort to many persons: If one did not do well on intelligence measures, this probably was due to the fact that the intelligence measures were limited measures of human abilities and that more valuable creative abilities could be identified through the newer tests.

The generalization was surprising to some persons who, in extensive work with large groups of intellectually gifted young people, had observed many of the same traits which were labeled traits of creativity. For example, in the California study *Educational Programs for Gifted Pupils*, we presented a series of characteristics which bore extremely close resemblance to characteristics of the creative published in books some two years later. We were concerned about the assumed separation of creativity and intelligence and felt that more than the usual expected numbers of creative individuals were to be found in a population of identified intellectually gifted persons.

It is not my purpose to analyze the validity of claims in specific creativity studies, since this task has been done effectively by such persons as deMille and Merrifield, Robert Thorndike, and others. It is sufficient to point out here that these reviewers have demonstrated quite conclusively the need for much more careful research with qualitatively appropriate measures, with more careful design and documentation, and with less generalization beyond the available data.

Wallach and Kogan, in a recent book, *Modes of Thinking in Young Children*, analyze a number of studies dealing with the question of whether creativity and intelligence are independent and unrelated dimensions of ability. They point out that "creativity" tests relate more strongly to a standard intelligence index than they relate to one another, that the unifying factor among divergent thinking measures is the variance they have in common with indicators of general intelligence, and that the assumption of researchers in creativity that creativity is not intelligence is unwarranted at the present.

The implied dichotomy between creativity and intelligence has been of concern to us for some time. The finding that the qualities were separate and unrelated or that some of the lowest ability persons were the most creative did not coincide with our observations of the versatile talents and high creative production of nearly 1,000 gifted young persons.

In order to determine whether creativity *is* independent of measured intelligence, this writer and May V. Seagoe, professor of education at UCLA, conducted a study of 100 elementary school children which may present some promising leads for further and larger studies. The premises upon which the study was based differ in some respects from those in other studies of creativity.

The first premise was the decision that the most promising current method for identifying creativity was judgment of products, qualitatively judged on specific criteria. Much has been written on research dealing with the creative person and creative process. Nearly all of the research is at adult level, especially in the realm of the creative person; and all is still subject to long term validation with respect to creative productivity. In tests of the creative process, the level of tasks and the very existence of a testing situation in itself have mitigated against the qualitative measurement of creativity. Through judgement of products, it was assumed that problems of time limits, narrowness of tasks, irrelevance of tasks, invalid measures, differentiation of quality, and other factors could be minimized.

A second premise was that the pupils judged must come from a common background insofar as possible. Accordingly, the research group chosen was one which had in nearly all cases attended the same school from nursery onward, had been taught by the same teachers, and had come from similar socioeconomic background.

A third permise was that in order to determine whether intelligence and judged creativity differ, the criterion groups must be separate, rather than coterminous, overlapping, or similar in intelligence. Thus, the 100 children in the sample ranged from IQ 130 upward to 170 and from 83 to 119, with the 120-129 band omitted. The mean IQ's of the high and low groups were separated by 35 points. All of the children were old enough to express themselves adequately in writing as well as verbally.

Fourth, the Stanford-Binet was used as the intelligence measure. As the best available, it does provide more accurate measurement than time and ceiling restricted group measures and allows the child to provide qualitatively different demonstrations of his capacities.

Fifth, the productions to be judged had to be acquired in a way which would enable children to respond naturally, without anxiety or time pressure, in the usual school environment.

Sixth, sufficient time had to be available for both scope of sampling in various fields and for reasonably natural production.

Seventh, the judges in various fields had to have two common characteristics: (a) expertness in the field in which they were making judgments and (b) wide experience in elementary education.

Eighth, the tasks had to be broadly representative, creative products, either tangible or ideational, that is, either objects or ideas.

Ninth, the sample tasks had to meet the following criteria: intrinsic appeal and interest to the children; at least theoretical possibility of solution, as opposed to pure whimsy and fantasy; wide possibilities for response; potential satisfaction to the child; appropriateness to the developmental level but without ceiling.

Tenth, and last, common criteria for judgment had to be established and criteria for qualitative judgment had to be worked out with the judges, who made their judgments with no knowledge of the children.

The two dimensions utilized were originality and effectiveness of expression. Originality was defined further as novelty, uniqueness in ideas or expression, variety and fluency in output on a qualitative rather than a quantitative basis. Effectiveness of expression in aesthetic products was defined as aesthetic quality; poetic, exquisite quality of communication; impression of feeling of beauty; effective use of elements and/or media. On products involving ideas, the term was further defined as appropriateness of solution or logic.

Ratings were made on a nine point scale of products derived from classroom production during a semester in free painting and clay; poetry; an open titled story, "It Couldn't Happen"; two social studies essays on Utopia and on a desert island survival problem; sound filmed free and interpretive rhythms; and two as yet unsolved problems dealing with communication and travel on the moon.

The science products were acquired by taped interviews. All others came in normal classroom contacts with the usual teachers. No limit was set on actual numbers in the nine categories from high to low, although the judges were encouraged to use a continuum, because it was felt that quality may not necessarily be evenly distributed from group to group or topic to topic. Each child's product was judged independently by three experts in each subject category.

Comparisons made on IQ, judged products, and four divergent thinking measures showed that only one divergent thinking test (Associations) favored the high IQ group significantly. (This one test, verbal in nature, was also found significantly correlated with intelligence by Robert Thorndike.) The Match Problems, Utility, and Consequences tests did not differentiate between low and high IQ groups.

On products, judged qualitatively, highly significant differences were found in favor of the gifted in science, creative writing, the essay on Utopia, and rhythms. No significant differences were found in art or on the survival problem.

From this pilot effort we learned several things and strengthened some previous convictions:

1. Direct teaching may restrict diversity among children, as in art. The teaching of techniques may increase commonality of production.
2. Much more training of judges is needed than was possible in this unfinanced effort.
3. Where quality or excellence becomes the common criterion, rather than total verbal output or mere difference in expression, the seeming differences between measured intelligence and demonstrated ability in creative areas disappear.
4. Whether a product is uncommon is not sufficient. The judgment must go beyond this to quality and value.
5. We still think that creative people really are intelligent, and the statement may even be true if we reverse it.

Added studies will add greatly to our understanding of human abilities. Meantime, the growing realization that definitive answers are not yet available on creativity is wholesome. The realization may provoke fresh explorations, rather than replicative studies. I only hope that the uncommonness of both extremely high intellectual ability and true creativity may produce an increasing search for the highest demonstrated quality. Then the dichotomy will disappear.

Rather than despairing over our present inability to identify all abilities of our most capable young people, it is important to use well what we know and to realize that the abilities we can identify present the potential for extension into many fields of endeavor. The aptitudes for language and mathematics, for example, form the basis for production of poetry, of literature, of research, for the study and resolution of social problems, for learning one's role in the history of mankind, for living effectively, for scientific invention, and even for artisitic production. Instead of seeing aptitudes as restricted and narrow, we need to look at the potential they really represent and free students to use these potentials as they learn.

This may mean that we allow students to learn independently, to center on topics rather than detail, to debate and question, and to study ideas and subjects inappropriate to the prescribed curriculum but singularly appropriate and important to them. Then we will establish the climate advocated by creative adults in studies. Then, too, the dichotomy will disappear and--who knows? -- if we start early enough, maybe even the problem of underachievement will disappear.

ADJUSTMENT PROBLEMS OF THE INTELLECTUALLY GIFTED

James Twyford Mehorter

Historically, psychological theorists have conceived of mental processes as a triune or troika comprising three major systems: thinking, feeling, and willing — or, more properly, cognition, affectivity, and conation. Cognition, it is said, refers to the intellectual dimension of personality and includes such behaviors as perceiving, remembering, discriminating, integrating, generalizing, and evaluating — processes through which the individual ostensibly obtains knowledge about something. Affectivity, on the other hand, is said to refer to the emotional dimension of personality, the feeling domain, including the individual's attitudes, values, and social and emotional needs. Conation is said to refer to the volitional or motivational dimension of personality (its antithesis or antonym being homeostasis), which has been described as "The intrinsic unrest of the organism," and which includes such behaviors as impulse, desiring, striving, willing.

The impact of Gestalt theory and such similar antibehaviorism as the organismic and holistic attitudes (the combined thrust of Koffka, Wertheimer, Kohler, Lewin, Meyer, Goldstein, and Maslow) have tended to distill this threefold distinction of mind into a single entity — a concept of personality as a unified and integrated totality, with cognition, affectivity, and conation regarded as coordinates interrelated and interdependent variables within a whole system. Moreover, that specific manifestation of personality which we call intelligence (which Binet, Terman, and Thorndike considered as predominantly cognitive in essence) has been viewed by Freud, Wechsler, and Allport, for example, as a phenomenon necessarily blended with and colored by such nonintellective factors as feeling and desiring. Further, there is some hint in present research efforts in the field of biochemistry, particularly in the work of Abood (1960), that cognition is influenced significantly by certain molecular factors, as yet illusive and empirically uncontrolled. It may also be noted that the role of chemogenic factors in behavior, especially learning, as first hypothesized by Kraepelin (1907) in his concept of "metabolic instability," and recently demonstrated by Heath (1957) in the discovery of the protein substance taraxein, together with present research activity (Kety, 1958) with LSD and other psychedelic compounds, has yet to be determined. Present evidence of chemogenesis is impressive and hold much significance for the study of human intelligence. Certainly the tenability of "intellect expanding" drugs is not at all remote, to cite but one possibility.

Therefore, it should be recognized that intellectual performance is not merely influenced by, but contingent upon, a multiplicity of noncognitive factors comprising a maze of affective, conative, psychomotor, psychophysiologic, and biochemical variables in constant and dynamic interaction.

With this point in mind, then, it should be noted that much of the attention and educative experiences provided for the intellectually gifted does not take into account the total personality of the individual, but merely one segment thereof. In virtually all that is offered as "enrichment" for the gifted throughout the grades, the emphasis is invariably placed upon the cognitive sphere, with little or no attention focused on the affective and conative domains. The "whole child" concept, its scientific validity notwithstanding, tends to be conspicuously absent in curriculum provisions for the gifted. There has been a tendency to place inordinate stress upon the purely intellective qualities of experience, since the psychological needs of the gifted tend to be viewed as predominantly cognitive in nature because of the prevalent attitude that enrichment can best be accomplished by scholastic acceleration, by the vertical and horizontal escalation of academics.

It is precisely in this context that a serious gap is observed in the American school program as a whole, namely, the failure of virtually all that is offered through the grades to deal directly with what is known with some reliability in the behavioral sciences about the nature of human personality and its modes of behavior. It is very easy, and expedient, for example, to equate harder work with enrichment. The only difficulty is that it is a fallacious equation. Indeed, it seems to me that more work or a series of academic gymnastics is exactly what gifted youth can very well do without if we are thinking in terms of personal challenge.

Accordingly, I would propose that, in order to actualize and maximize intellectual performance and thus foster gratifying and productive experience for the gifted individual, a greater psychological emphasis should be built into the matrix of curricula and, in large measure, serve as nuclear and evaluative criteria for enrichment programs stemming therefrom. In other words, it is suggested that the contour and texture of academics should be more behaviorally oriented (with due respect to the sacred teachings of the good Admiral Rickover); learning activities, for example, should have greater personal relevance to the learner; and such activities should be intimately meaningful, purposeful, and otherwise valuable to him so as to serve effectively in helping him to resolve his individual, unique "developmental tasks."

But what are these tasks as far as the gifted individual is concerned? More specifically, what seem to be the major adjustment difficulties which the positive deviate typically encounters in the course of his life (especially in childhood and adolescence as compounded by exceptional intelligence) and which tend to inhibit in some degree his achievement potential? Actually, rather little has been written about the problems of adjustment confronting intellectually superior youngsters. And it was in view of this paucity of knowledge that I sought to (a) research the literature, (b) identify the principal adjustment problems, and (c) design a high school course in personal development centering about these problems and purporting to help the gifted student resolve them. It was found that at least six major categories of problems present relatively unique socioeconomic difficulties for the gifted. These are:

1. Problems associated with realizing the nature and significance of intellectual differences, referring chiefly to (a) a lack of knowledge and understanding of intellectual differences, particularly personal derivation from the generality and attendant conceptual and behavioral differences, resulting in (b) feelings of being "different," "peculiar," and an "outsider."

2. Problems associated with intellectual frustration in normative school and life situations, referring chiefly to (a) finding little ideational satisfaction in a routine, dull, and unchallenging school programs; (b) being repulsed by "black and white" thinking, dogmatism, and concrete fixation in parents, peers, and teachers; and (c) enduring the stereotype of an "intellectual," "egghead," highbrow," and other nondescript and derogatory labels.

3. Problems associated with the infrequency of wholesome interpersonal relationships, referring chiefly to (a) lonely, isolated activity and (b) difficulty in relating to others in affectionate friendships and understanding rapport with parents, peers, and teachers.

4. Problems associated with conformity, referring chiefly to (a) a generalized repulsion by sociocultural and peer group-parental values and mores as exhibited by (b) a sensitive and critical attitude toward irrational and indefensible conceptualizations and behaviors in the form of mediocrity, imperfection, collectivism, and the cliche statement or platitude.

5. Problems associated with discovering, preparing for, and locating a satisfying vocation, referring chiefly to (a) receiving poor guidance by parents and teachers and (b) lack of opportunity to develop reasoned prospects for a life career.

6. Problems associated with developing a satisfying intellectual philosophy, referring predominantly to (a) heightened concern over abstract, philosophical questions, notably (b) questions dealing with the origin, destiny, meaning, purpose, and value of life; the

meaning of death; the nature and possibility of God; and the conflict or contradiction between opposing forces, particularly good and evil, life and death, beauty and ugliness.

Unfortunately, time prohibits my delineating these problems and describing the study with specificity. Suffice it that it was around and upon these categories that a course of study entitled "Self and Society," comprising a series of 16 units of independent study (as patterned after Virgil S. Ward's (1960) concept of "independent study"), was designed and subsequently implemented in the Governor's School of North Carolina in 1964, with the validity of the developed materials yet to be explored empirically.

It is submitted, then, that (a) greater attention needs to be accorded to the relevance of the "whole child" concept as it pertains specifically to educative provisions for the gifted (b) further effort needs to be made to conceive and devise programs of enrichment within a psychological context and (c) my modest accomplishment may tend to serve as a relevant illustration of the plausibility of the former (the concept) and the feasibility of the latter (the endeavor).

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THE ILLINOIS PLAN — A STRATEGY FOR EDUCATIONAL CHANGE

William M. Rogge

The University of Illinois; the Office of the Superintendent of Public Instruction, state of Illinois; and the United States Office of Education, are playing an active role in the building of a model program to nurture educational change. The model has three components: demonstration, inservice training, and the recruiting and training of persons who perceive themselves as change agents.

The rationale for the model views the local school system and, more specifically, the classroom teacher as being the focus of many outside pressures to change. These pressures include the guidelines that accompany the increasing amounts of federal funds, the implicit and explicit assumptions of curriculum projects, the sales force of commercial book publishers, and state regulations. The sum effect of these outside pressures probably results in more resistance to changes than acceptance. Little thought is given to assistance to the local school systems so that they feel like full fledged partners in the changes taking place. The local educators themselves, of course, are already demanding consumers of innovations in products and services.

As the pace of change accelerates and as the innovations increase in number, it becomes a frustrating experience to assess the worth of each innovation. Each innovation will be accompanied by some kind of pressure for its acceptance. The receiver of the pressure, if he lacks the time and means for evaluation, must either give up and move with the tide or become an obstacle that will try not to be moved.

Three methods, somewhat dependent upon each other, have been developed through the Illinois Plan of Program Development for Gifted Children that deal with the complex process of educational change. First, the program has developed a method to seek out, evaluate, and demonstrate innovations that might be of worth in program development for gifted children.

The starting point is a demonstration center where innovations are made visible to potential users. The innovations to be demonstrated are selected by a reviewing panel and must meet certain criteria, such as internal consistency; lack of contradiction with major research findings; and a blending with some of the major social expectations of our times, especially in problems areas such as disadvantaged children, creative talent, and underachievement.

The next step that has been taken is to supply to local school systems the resources and a model for involvement with change. This has been put under the general title of "Inservice Training" and consists of supplying to the school district specific procedures for studying the events taking place in the classroom, the student populations involved, and the informal structure of the school system that can support or hinder educational change. This kind of internal assessment demands resources far beyond those typically assigned to an inservice training program that lasts for two or three days of the year. The new model calls for regular work, certainly no fewer than one or two hours once a week during the regular school day; opportunities to see other school systems and innovations in operation; and an opportunity for each teacher to see the other performing his tasks.

The third method is to train a group of people whose self-image is that of a catalyst or change agent and not just of a demonstration center director, a director of a program for gifted children, a demonstration teacher, or a consultant. Through training, each of these change agents has not only been provided with specific procedures of assessing and understanding the nature of educational change but has been asked to take a close look at his own role and to constantly restructure it until it comes closer to an ideal of a change agent. These training opportunities have included group counseling procedures, self-assessment techniques, feedback from colleagues, and review of the most recent literature (especially in sociology) concerning the nature of the institution of education.

These three approaches—demonstration, inservice training, and the training of change agents—have been funded by the state legislature at a sum of $6.75 million during the 1963-65 biennium and $7.5 million for the 1965-67 biennium. The funds have been specifically allocated for such purposes as supporting 21 demonstration centers, local research and development projects, scholarships and fellowships, training institutes, reimbursement programs that will pay for teachers' travel, and other arrangements that are developmental in nature rather than supporting the status quo.

The leadership for this program development has come through University of Illinois personnel, from many persons located in Illinois and elsewhere who are interested in the nature of educational change, and through the commitment of a small but hard working state staff. The staff in local school districts has had a general awareness that everybody involved was not only a change agent in a smaller sense of the local school system, but in a larger sense of creating a new kind of program that might serve as a model to educational agencies throughout the country.

Future activities cannot be projected in detail far in advance, since the concepts of demonstration centers, inservice training programs, training leaders, and other ideas are rapidly expanding. Certainly, the three major ideas of demonstration, inservice training, and change agents will be further refined by more specific efforts. Much work has yet to be done to make the significant elements of the demonstration centers visible to observers, to pinpoint those cues that legitimatize the innovation in the eyes of the observer, to help them become aware of what innovations they may have need for or wish to reject, and to seek out more rigorous training opportunities. New directions include the possibilities of cooperative arrangements by universities with large school systems that view themselves as independent of many of the innovations being created and disseminated among suburban schools. There will be more incorporation of additional funds within operations which will be accepted by small and somewhat isolated school districts. There will be curriculum projects built around supporting the process of educational change, as well as changing the content and teaching strategies in the classroom.

As Paul Goodman suggested to John Lindsay as the latter undertook the many problems of New York City, we ought to be inventive enough to conceive of major educational alternatives to the typical public school, teacher-classroom oriented experience in order to produce a viable alternative far different from anything of which we presently conceive. We can recognize quickly enough the limitations of our present educational patterns for school dropouts, for the disadvantaged, and for many other groups. The alternatives so far created are limited. We need diversity in alternatives and commitment by professionals to carry out the alternate patterns. Hopefully, the Illinois plan will expand its image of itself from one biennium to the next.

A RESEARCH INSTITUTE'S APPROACH TO GIFTEDNESS

Ada Schermann

The research institute whose approach I am about to describe is the Institute of Child Study within the University of Toronto. The Institute was founded in 1925 by the late Dr. W.E. Blatz, whose interest at the time lay primarily in assessing the foundations of mental health. His conviction that the behavior of well children required documentation necessitated the starting of a laboratory school. A nursery division was opened at this time, and some years later elementary grades were added. It was felt that observations should be made in a setting in which the child was free to grow. With this emphasis on understanding personal growth patterns, it is not surprising that the Institute's approach to giftedness has been one in which giftedness has been seen as one manifestation of individuality.

At the present time the Institute serves not only as a research center, but also as a teaching department within the university. The intermittent traffic of university students through the classrooms provides an atmosphere somewhat different from other schools. This demands additional flexibility from the teachers and broadens the experience of the children.

Examination of what is taking place in a program should not merely be an account of ongoing events. This surely would imply a satisfied air, hardly appropriate to a research center. It is fitting, therefore, to begin on a questioning note.

The first question relates to the meaning of the term gifted. In most instances the programs provided for the gifted are a direct result of the definition adopted. At the Institute of Child Study, giftedness is seen as exceptional skill. It is not possible to define giftedness in terms of end products; this would be an endless process, for we are aware of its multidimensional character. Nor are we yet able to list the attributes underlying giftedness. To speak in terms of intellectual, creative, social, mechanical, and artistic skill does not tell the whole story. However, to be overawed by the complexity of giftedness is akin to being overwhelmed by the variety and richness of human behavior.

Perhaps psychology provides us with a model for the study of outstanding performance. It may well be that the lesson to be learned is that we should be studying the processes underlying superior endeavor, in an effort to provide an atmosphere where the skills involved in these processes will flourish. An analysis of the cognitive, affective, motivational, and environmental variables underlying outstanding performance need to be explored and thoroughly understood. As with many other areas of development, the practical problems arising with the gifted have precipitated the ar rangement of special programs; practice has outrun theory and, while some gifted children are being both recognized and catered for in schools, the theoretical foundations of many programs are questionable. Our culture has in the past emphasized intellectual skill; today it is fashionable to speak in terms of creativity. Precisely how many other forms of giftedness exist is unknown to us.

The problem of identification assumes huge proportions when one is unable to list the many forms of giftedness. It is essential, therefore, that in any program the child have the opportunity to identify himself at any time. This does not preclude the use of special tests, such as tests of intelligence and creativity, but rather avoids the emphasis being placed on formal measures and, instead, sees the day to day classroom activity as providing the diagnostic setting. If the classroom program is sufficiently open, children will have the opportunity of revealing exceptional skill. This avoids the first problem posed by identification, namely that of what to look for and measure. The second question has to do with when one begins identification.

Studies of gifted children have focused mainly on those in the late elementary and secondary school years. This may mean that in some cases much precious time has been lost. The role of the early childhood years in relation to the development of skills is not yet fully understood; and as long as one believed in a fixed and predetermined type of intelligence, this view was no catastrophe, for this one type of giftedness would still emerge. However, if early experience does play a vital role in determining the realization of this potential, then early identification may be of considerable importance. It is also conceivable that in some instances of identification of children who would just fail to qualify for admission to gifted groups selected on the basis of an intelligence test, early identification would actually make the difference between inclusion or exclusion from such classes at a later date. Hence the question that educators should be asking is "To what extent can this innate potential be realized, raised, or possibly destroyed by education?" In other words, "What is the value of early screening?"

A further problem in the area of identification relates to whether or not there are critical periods in the development of excellence, for what represents outstanding performance at the five year level is certainly very different from superior performance at ten years and again at fifteen. Even if one does not aim at comparing the end products of gifted children at these various age levels, the qualitative differences evident in their thinking imply that their excellence must take different forms. The preschooler at the preconceptual state is tied to the here and now. Is one form of his giftedness to be seen as outstanding performance at this level of thought or as an early entry into the stage of concrete operations? This query is also appropriate for the child moving from this latter phase into the real of logical thought wherein he is able to cope with propositions and ideas. Programs need to take account of both of these possibilities.

Having considered some of the problems involved, I shall now turn to a description of the educational arrangements at the Institute. In attempting to provide for the gifted child, the Institute of Child Study is not worried by the lack of a neat definition of giftedness nor embarrassed by unique or unusual forms. An open program is able to meet an ever expanding approach to the subject. One might look at what goes on, as I shall do now, and see it simply as a composite of the customary approaches. This would not be the whole picture, for its worth is only to be seen if one views this composite approach in relation to the setting in which it is occurring.

Children enter the nursery school when they are 3 years of age and, in approximately 70 percent of the cases, remain until they are 12 and have completed grade 6. Each class is limited to 20 pupils, and it may well be that this ideal class size provides a considerable advantage for the type of program to be described. Five of the children in each grade (and this is remarkably constant throughout the school) would qualify for inclusion in a gifted class where the basis for selection is an IQ of not less than 130. The remainder of the children in each class have IQ's falling between 95 and 130. The mean for the school is approximately 123, and here again this is fairly constant for each grade.

Acceleration in the accepted sense of the term is permitted at the grade 4, 5, and 6 levels, with the three years being completed in two years. The children who are selected for this treatment remain with their agemates, i.e., the group they have been with since nursery school. Their accelerated program is carried out mainly in their home classroom, but some of their time in their second year is spent with the nonaccelerated sixth grade group. At the end of the accelerated period, a parent may request that the child stay at the school for a further year. In a case such as this, the school then provides an enrichment year. Total assessment of the child is used as a basis for inclusion in this group, for it is believed that development of the child's total personality should proceed apace with his talents.

Inclass grouping is used in some instances. At the present time, the more able children from two grades attend the museum once a week, participating in an enrichment project. The Institute's program differs from some other enrichment programs in that next term, the less advanced pupils of these two grades will have their turn at the museum. This means that the advanced group will remain together for a second term of special work.

Some gifted children are given individual assistance outside of their home classroom. In these sessions, it is usual for the child to develop a project; these projects usually stem from the child's own interests but are too far outside the range of classroom activity to be carried to a successful conclusion within the classroom. These are occasions when the child needs a more intimate situation to think things through. It is hoped to acquire extra staff to carry on small seminars and also to provide more of this type of help.

Acceleration, inclass grouping, and individual help are not to be seen throughout the school, the practise varying according to the group involved. There is, however, one way in which the classrooms exhibit a distinct similarity, i.e., in the openness of the curriculum provided. The children are given tasks in which they have an opportunity to choose their own level of functioning. For example, one grade was told to write an appropriate fifth chapter for the novel they were studying, after having read the first four chapters. Book reviews are often presented by the fifth grade class. There is considerable opportunity here for showing excellence of one sort or another. The child presents his or her review to the class and invites comments. The books chosen for review certainly reflect the maturity of the reviewer. In one social studies class, each pupil had to choose an instrument and collect facts about it. The instruments chosen ranged from the wheel to the use of language as a tool. The openness of the curriculum leads to an emphasis on the exploration of possibilities, rather than on the storing of facts. This is probably the main reason why the gifted child can be well catered for in this program.

On many occasions the class is required to prouduce something as a group. Recently a class of seven year olds undertook the production of a film strip on the life of the Eskimo. Contributions were poems, factual information, clay models, and paintings. In this type of situation, individual talent becomes highly valued. It also gives the child the opportunity to display unusual talent; and once this has emerged, the teacher is in a better position to nurture it and to help the children accept one another's individual differences. It has been said at the Institute that school is part of living, and life is lived in a heterogeneous group.

The Institute's approach may be summed up as one in which norms and single measures of giftedness are avoided. It is a place where enrichment is not the privilege of a few children, but the right of all children. It is noteworthy that enrichment in this open setting in which the child's role as a producer is stressed provides an educational experience in which many types of gifted children are able to grow alongside their less talented peers.

SELF-DISCOVERY THROUGH INDEPENDENT STUDY: A PROJECT FOR ABLE BUT UNDERACHIEVING HIGH SCHOOL STUDENTS

William Watson Purkey

Programs for the gifted have focused primarily on the academic and intellectual development of the able and achieving student. By contrast, the self-discovery project here described focuses its attention primarily on the personal and social development of the gifted high school underachiever—the student with high mental ability but whose performance is significantly below his potential as measured or demonstrated.

Objectives

The primary objective of this investigation is the preparation and evaluation of an experimental independent study project for gifted high school underachievers built around the difficulties which they are recognized to experience in personal and social development. It has been known for a long time that the tendency toward underachievement in bright students stems from difficulties in personal and social adjustment. These include: (a) lack of self-confidence, (b) inadequate social relationships, (c) lack of perserverance, (inadequate expression, and (e) an inadequate philosophy of life. These categories serve as foci for twelve discrete but interrelated study units of the self-discovery (SD) project.

A secondary objective of the study is to utilize a phenomenological approach in order to look at underachievement from the student's point of view and then to provide him with a series of perceptual experiences which will teach him more about himself—to show him that he really counts and that he is capable of responsible independence and accomplishment.

Preparation of the Project

Three guidelines were followed in writing the SD project. The first of these was that threat should be kept to a minimum. Thus, there are no grades in the SD project, no time limits, and all work is held in confidence. Further, students must volunteer to undertake the work. The second guideline was that there should be maximum respect for the student. In every way the project aims to enhance the student's views of himself. A final guideline was that the student must invest himself in the SD project. This was encouraged by dealing with real and pressing pressing problems and by being deliberately entertaining and humorous through cartoons, checklists, photographs, self-inventories, projective devices, and other interesting materials.

The completed SD project manual consists of a series of twelve units, each made up of (a) an introduction addressed directly to the student, explaining the personal significance of the unit, (b) a relevant reading or research assignment, and (c)"a self-discovery exercise" (SDE) writing assignment. The SDE's are perforated along the side, so that they can be removed from the manual and submitted to a counselor. The counselor serves as a sympathetic reader or foil against which the student reflects his ideas. It is not what the counselor writes or says to the student that is important, but rather what the student thinks and writes about himself. The counselor returns the SDE's to the student at an address of the student's choosing.

With minor modifications, the SD project is suitable for use by university home study correspondence departments by teachers, guidance counselors, or other professional workers as they work to assist bright underachievers in the area of personal and social development.

Evaluation of the Project

The evaluation of the SD project is divided into three phases. Phase I, supported by a University of Florida Faculty Research Grant, runs from November, 1965 through March, 1966. Phase II, supported by the University of Florida Division of Continuing Studies, runs from January, 1966 through June, 1966. Phase III, supported by a grant from the US Office of Education, runs from May, 1966 through March, 1967.

Phase I. The SD project was introduced to a group of 24 teenaged subjects who had been identified as able but underachieving in school. Comparisons of the self-descriptions of these subjects were made before beginning and after completing the SD project. The comparisons were made on the basis of subject's performance on the "Self-Ranking Inventory" (SRI), an instrument designed by the researcher in order to obtain professed self-evaluations from each subject which would be directly comparable to the 18 variables of the California Psychological Inventory (CPI). Descriptions of each of the 18 variables of the CPI, taken as exactly as possible from the scale descriptions devised by the author of the CPI, comprised the substance of the SRI. Also, at the conclusion of the SD project, counselors and students were asked to subjectively evaluate the material.

Results of Phase I. When pre-self-evaluations and post-self-evaluations were compared, significant differences (.05 level or greater) were found on 5 of the 18 variables. Significant changes occurred in: sociability—a liking for and an interest in social life; responsibility—conscientiousness and dependability; communality—fitting in with the crowd; good impression—an interest in creating favorable impressions; and socialization—an acceptance of rules and a sense of uprightness. All significant differences were in a positive and favorable direction. Teacher, student, and parent evaluations of the SD project were uniformly favorable.

Phase II. A second phase of the evaluation explores the value of the SD project for correspondence study at the high school level through university home study departments. Fifty high school subjects from 25 Florida high schools are enrolled in the SD project via University of Florida Division of Continuing Education. All students were tested before beginning the project and will be tested after they finish.

Phase III. The most ambitious evaluation will begin May 1, 1966. Here, comparisons of the adjustive capacities of a selected sample of able but underachieving students before and after completing the SD project will be made, along with comparisons with a matched control group. Efforts will be made to ascertain differences, if any, in test estimated personality characteristics; outwardly professed personality characteristics; derived measures of self-insight; grade point average; and counselor, teacher, peer, and parent evaluations.

Discussion

Statistical analysis of preliminary research findings and subjective evaluations by educators, parents, and students indicates that certain tentative conclusions may be inferred. First, it appears feasible to construct a project which will supplement and enrich, rather than supplant, regular high school offerings. Second, it is possible to reverse the usual teacher-student or counselor-student role in the learning process. Third, a project of this sort, once introduced, tends to run itself. Fourth, a school's sensitivity to the student and his needs can determine the amount of its involvement in the SD project.

In sum, the gifted underachiever whose extraordinary potential is not being fulfilled represents a tremendous loss to society. The SD project may lead to a way in which this loss may be reduced.

ABSTRACTS

CREATIVITY IN EARLY LIFE

Don C. Charles

Definition and identification of creativity has depended pricipally on two criteria: performance on tests (a la Torrance) or evaluation of produced works of mature persons (a la Mackinnon). Problems are inherent in both approaches, especially with children: Is it creativity that tests of creativity measure? How can the works of a child be evaluated when competence is low?

A study was carried out on 75 children age 3 to 18 who produced paintings in an art class. Appropriately coded and presented, 2 works from each child were judged for creativity and competence on an 11 point scale by professional art experts. There was a high degree of interjudge agreement, creativity and competence were clearly separated, and developmental patterns were recorded.

While some irregularities were found, creativity was relatively constant, while competence showed a steady rise to age 18. The most creative in each age group, compared to the least creative, were less conforming in their general and social behavior, showed generalized creative behavior, were more stable emotionally at most ages, demonstrated greater self-direction and self-pleasing motivation, and were less social. Teachers and parents could identify these children as creative.

Teachers and parents should be on the lookout for these "different" children. They should be guided, not forced, and their lives should not be overly organized. It appears that work in the graphic arts at least can start very early, even though little competence exists.

The research reported above will be published as: "Creativity in Art Students," by Norma Trowbridge and Don C. Charles, Journal of Genetic Psychology.

EFFECTS OF SELF-DIRECTED LEARNING ON GIFTED ELEMENTARY SCHOOL CHILDREN

Marvin J. Gold

The present study concerned an attempt to investigate the effects of self-directed learning on gifted elementary school children who worked without teacher imposed direction in a resource room.

The subjects were drawn from a population of fourth, fifth, and sixth grade children in attendance at an elementary school serving an upper middle class community. The 96 children considered to be moderately superior and above on various intellectual measures became a pool from which experimental and control subjects were drawn randomly. Due to attrition, the original 48 experimental children were reduced in number to 39. The control groups remained intact. The mean total IQ on the short form of the California Test of Mental Maturity was 126.6 for the total experimental group. It was 125.4 for the total control group.

A pretest (September) and two posttest (February and June) administrations of several groups devices were originally planned to measure all subjects, growth in academic achievement, study skills, divergent thinking, and personal and social adjustment. Since this study was terminated prior to the final testing, only the first series of posttests were administered.

Other information was gathered through daily logs maintained by the resource room personnel, who also helped the experimental subjects establish and maintain patterns of behavior necessary for the most efficient and cooperative use of the resource room. These resource people were instructed to refrain from initiating activities or imposing directions upon the subjects.

Each subgroup of experimentals spent two periods per day in the resource room which housed a wide variety of books and materials. While here, members of the experimental group had opportunity to explore areas of interest to them in reading, social studies, and science in the manner and to the depth they chose.

A series of $\underline{t}$ tests were run to determine if there were significant statistical differences between the changes made by the experimental and control groups in the several areas under investigation.

Hypothesis I states: The self-directed subjects will have a level of achievement greater than that of the control group in the areas of reading, social studies, and science. Since there was no clear cut trend favoring the experimentals based on significant statistical differences between groups, this hypothesis was rejected. This indicates that in those academic areas under investigation, there was generally no difference in growth in achievement between those subjects taught by teachers and those who directed their own activities.

Hypothesis II states: The self-directed subjects will have an achievement level greater than that of the controls in certain peripheral areas, such as language arts and work-study skills. This hypothesis was rejected, again indicating no clear cut advantage for either group except in Arithmetic Reasoning on the California Achievement Test. This gain favored the experimental groups. The investigator speculated that the freedom inherent within the resource room situation might have enabled the experimentals to develop nonarithmetic, problem solving skills which had transference to the regular classroom situation.

Hypothesis III states: The self-directed subjects will have significantly greater growth in the area of divergent thinking, as evidenced by increased flexibility, fluency, and originality. Since the experimental groups' gains were not significantly superior to the control groups', this hypothesis was rejected.

Hypothesis IV states: The self-directed subjects will have a level of growth in personal and social adjustment equal to or greater than that of the control group. This hypothesis was accepted with certain reservations, since it appeared that the resource room in and of itself did not lead to poor adjustment on the part of the experimental. Where the children perceived adult support (or at least neutrality) towards the program, the mean adjustment scores showed a positive change. Fourth grade experimentals' growth supported this point. Where the children perceived adult sanctions raised against the resource room and its activities, adjustment scores fell. This was evident for the sixth grade experimentals.

In conclusion, there were very few significant statistical differences between experimental and control groups in academic achievement in the resource room activities (reading, social studies, and science). There was also little difference between gains made by the experimentals and the controls in the other academic areas, study skills, and divergent thinking ability. Personal and social adjustment seemed to be most affected by adult opinion of the program.

MENTAL RETARDATION

THE APPLICATION OF LANGUAGE AND COMMUNICATION MODELS IN PROGRAMS FOR THE TRAINABLE RETARDED

Barbara Bateman

Language and communication models appear to have at least three roles in programs for trainable retardates: (a) in the diagnosis of specific language problems of an individual youngster; (b) in the development of instructional emphases, materials, and techniques; and (c) in generating further research on the nature of language problems in the trainables.

Two theoretical models which have produced both assessment instruments and research are those of Osgood (1957) and Skinner (1957). Sievers' (1955) Differential Language Facility Test and Kirk and McCarthy's (1961) Illinois Test of Psycholinguistic Abilities (ITPA) were derived from Osgood's model, in which language is described by the three dimensions of channel (auditory vocal and visual motor), process (decoding, association, encoding), and level (representational, automatic sequential). The ITPA measures auditory decoding (understanding speech), visual decoding (understanding pictures), auditory vocal association (completing opposite analogies), visual motor association (relating objects or pictures to each other), vocal encoding (vocally describing simple objects), motor encoding (demonstrating how to use certain objects), auditory vocal automatic (spoken grammar), auditory vocal sequential (digit repetition), and visual motor sequential (memory for order of visual symbols).

The use of a diagnostic test such as the ITPA in planning individual language remediation is familiar to clinicians who conceive of the diagnostic process as gathering those data pertinent to remedial treatment. The pattern of a given child's psycholinguistic strengths and weaknesses can be profiled and exercises designed which use the assets to improve the deficiencies.

Spradlin (1963a) suggests that the rationale for the ITPA assumes that the subtests measure language processes within the person and that the subject's responses in the test are only affects of these processes. The rationale is thus said to involve both dualism and circularity. He also suggests that certain constructs used, such as the "representational level" (meaningful or semantic language) and "association process" (making relationships among stimuli seen or heard) cannot be reduced to operations.

In contrast, the Parsons Language Sample (Spradlin, 1963b) is based on a descriptive model which assumes only that observable language responses are being sampled in various situations. In the Parsons Language Sample (PLS), language behavior is classified according to whether it is vocal or gestural and according to the type of stimulus conditions evoking or controlling it. The three types of language and behavior are mand (demanding or asking), tact (naming), and verbal behavior under the control of verbal stimuli (echoic, intraverbal, and comprehension). There are seven subtests:

1. Tact, in which the subject names objects and pictures.
2. Echoic, in which the subject repeats digits and sentences.
3. Echoic gesture, in which the subject mimics motor acts.
4. Comprehension, in which the examiner directs (vocally, gesturally, or vocally and gesturally) the subject to do certain motor acts.
5. Intraverbal, in which the subject must complete verbal statements such as "Snow is _____", complete opposite analogies, tell how two things are alike, and explain why we have such things as beds.
6. Intraverbal gesture, in which the subject is asked such questions as "Can a dog fly?", "What is a ceiling?", and "What do you do with a crayon?" and in which he is scored on the basis of the gestures with which he responds.

7. Mand, in which a stimulus object is presented to the subject and he must request it either vocally or gesturally.

An interesting observation about these two tests — the ITPA and the PLS — is, that in spite of their apparently quite different "parent models," they assess highly similar behaviors, in highly similar ways.

The following equivalences are apparent:

PLS SUBTEST	ITPA SUBTEST
Tact	Visual decoding and vocal encoding
Echoic	Auditory vocal sequential
Echoic gesture	Motor encoding (at automatic sequential level and visual motor sequential)
Comprehension	Visual or auditory decoding and sequencing and motor encoding
Intraverbal	Auditory decoding, auditory vocal association, and vocal encoding
Intraverbal gesture	Auditory decoding and motor encoding
Mand	Visual decoding and vocal or motor encoding

Only the ITPA functions of visual motor association and auditory vocal automatic are not measured by the PLS.

A second role of such language and communication models in programs for trainable children is that of developing instructional techniques on the basis of deficiencies found to be characteristic of the group.

On the well founded observation that low grade deficiency is not unitary in its pattern of functional deficits, O'Connor and Hermelin (1963) have refrained from interpreting their results according to any single theory. But they do point out their work is in substantial accord with that of Luria (1961) and Zeaman and House (1963).

O'Connor and Hermelin's studies point to the possibility that the basic deficits of the severely retarded be in acquisition and coding, rather than in retention or transfer. Acquisition seems to be impaired, at least to some extent, by difficulty in focusing attention on the relevant stimulus features. There appears to be a lack of appropriate or necessary sets or expectancies. The relevant set may be a long time in developing. In terms of some of the individual learning curves presented by Zeaman and House, it is relatively a long time after the initial presentation before learning begins in the retarded.

The coding deficit can be described as difficulty in making associations between words and signs or between words and percepts. The impairment in making semantic associations between words is not as great. In Luria's frame of reference, there is a lack of association between the verbal system and the one governing motor behavior. This difficulty interferes with information processing which requires translation across sensory modalities or between words and actions.

These two major deficits in acquisition and coding are interrelated in that acquisition can be facilitated by labelling and coding, but these do not appear spontaneously in the retarded. The speech limitations so often present impinge on the naming function; and the problem is further complicated by what O'Connor and Hermelin call verbal disinclination, in which the retarded do not use even those labels which are available to them unless so doing is specifically made part of the task. One further observation which has importance for planning remedial programs is the generally low level of responsiveness of retardates, which necessitates more and stronger stimulation.

Before a discussion of the remedial or language training implications of these studies, it might be well to examine the ITPA findings concerning retardates' deficiencies in the light of O'Connor and Hermelin's work. Retarded children, mild through severe, as a group show greatest psycholinguistic deficiencies in auditory vocal sequential (digit repetition), visual motor sequential (immediate visual recall of a series of visual symbols), and in auditory vocal automatic (grammatical form usage). Bateman and Wetherell, 1965; Jeanne McCarthy, 1965.) The simplest way to talk about this pattern of deficits is to describe it as an immediate memory deficiency coupled with a defect in incidental verbal learning (basic grammatical patterns), but O'Connor and Hermelin's work suggests a further possibility. If, as their work indicates, retardates have difficulty in developing a set or expectancy for a given task and have further related trouble in finding or learning to attend to the relevant aspects of the task, then it is possible that the material to be remembered (digits or visual stimuli) has not "gotten into the system," i.e., has not been learned to the point where recall is possible. This interpretation is clearly supported by Vergason's (1964) study of retardates' retention as a function of amount of original learning.

The necessity for many more repetitions or longer exposure to the task before learning occurs would suggest that the deficiency in auditory vocal automatic is one which should eventually disappear. If, in fact, the retardate will learn grammatical patterns, but only after many more months or years of exposure to them than are required for normals, it would then follow that adult retardates should not show the same relative deficiency in this area, as do children. In support of this, Gunzburg (1964) found that adult retardates' performance exceeded ITPA norms only in auditory decoding and in auditory vocal automatic. Other interpretations of the psycholinguistic performance of retardates as measured by the ITPA are certainly possible, but the evidence does appear to clearly support the formulations of O'Connor and Hermelin. No studies of the comparative performances of normals and retardates on the PLS are known to this writer.

Six implications for teaching language to retardates which can be drawn from these formulations (based on O'Connor and Hermelin) include the following:

1. Retardates' low level of responsiveness requires a high intensity level in task presentation.

2. The difficulty in attending to the relevant aspects of the task suggests the need for direct teaching of major dimensions. The soon to be published book by Bereiter and Engelmann, Teaching Disadvantaged Children in the Preschool (Prentice-Hall, 1966) offers the teacher of any children who have linguistic deficiencies a very explicit program for direct teaching of linguistic essentials. This writer recommends it very highly.

3. The coding deficiency suggests the need for systematic teaching of verbalization to accompany the execution of motor tasks or responses.

4. Tasks must be carefully planned to evoke what verbalization of concepts is present. The retardates' disinclination to use even those words or labels which are available to him from past learnings must be overcome.

5. Much work points up the need for frequent presentation and systematic overlearning, if retention and transfer are to maximized in the retarded.

6. The longer time and greater number of presentations required for task learning can be reduced somewhat by increasing the variability between stimuli, including verbal coding as part of the task, and giving simple and continued practice on similar tasks.

The third role of language models in programs for trainable retardates is that of generating further research. Some theories or models not previously mentioned have already produced research in language training of retardates. Among these is Rigrodsky and Steer's (1961) study of Mowrer's (1952) autism theory of speech development. In his excellent review of the linguistic problems of the retarded, James McCarthy (1964) points out that objective evaluation of language training programs for the trainable retardate has not yet been highly optimistic, but that the new assessment techniques being developed from linguistic theories offer encouragement to researchers. He notes that much of the linguistic research in retardation during the past decade has sprung from the theories of Osgood, Skinner, and Mowrer and mentions certain areas still in urgent need of research: the relationship of sensory processes to each other in language learning and usage; the use of expressive language other than vocal by the retarded; the process of translating ideas into output; the role of the CNS in linguistic problems of the retarded, particularly the brain impaired retarded; methods for improving linguistic abilities, especially of the trainable retarded; and the affective aspects of linguistic behavior.

Some of our present research efforts in this area are frustrated by the fact that the assessment of the process of language depends on the responses or output of the language learner. The Skinnerian model and the PLS represent one line of attack on this problem. Osgood's model and the ITPA represent a different attack. This rather fundamental difference is related, of course, to differences in S-R theory without and with mediational hypotheses.

The problem can be illustrated by imagining the linguistic researcher confronted with a trainable retardate who fails to name a given object. The PLS approach would simply describe the deficiency that way — failure to label. The ITPA approach would ask further questions based on constructs such as "association process." Introspectively, it appears possible that the child has the label in his storage system but is unable to retrieve it. If such a retrieval deficit exists, the implications for teaching appear to be radically different than they would be for the child whose storage system is so leaky that the label is not there to be retrieved. This problem of the magnitude of the discrepancy between recall and recognition in language learning by retardates is just one of many problems that beckons to researchers in this area. And the mode of attack on such a problem is related to the theoretical view one espouses.

The work of O'Connor and Hermelin, upon which this discussion has relied heavily, touches on the majority of these areas suggested by McCarthy. And yet their work does not derive from and is not exclusively related to any particular model or theory. This fact points up the desirability, in educational and psychological research, of being able to move freely from hypothesis testing to theory building and from theory building to hypothesis testing. Some effort was made in this paper to integrate two such differently obtained sets of data, one from the ITPA and one from the studies of O'Connor and Hermelin. Much work remains to be done in refining models of trainable retardates' language acquisition and usage in such a way as to make them point simultaneously and clearly to teaching procedures and to materials. As we construct new models, refine old ones, and test all of them, let us never lose sight of the fact that the trainable retardates' language is not facilitated directly by models or theories, but by someone who implements them in the teaching-learning situation.

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ONGOING RESEARCH PROBLEMS

Raymond S. Cottrell, Jr.

I have been associated with Dr. Herbert Goldstein on two research projects directly concerned with curriculum and methodology for educable mentally retarded children. The first of these was a research associate during the final stages of the Illinois study, more properly know as The Efficacy of Special Class Training on the Development of Mentally Retarded Children, by Goldstein, Moss, and Jordan (1965). I am presently serving on a part time basis as research director for Dr. Goldstein's current study, entitled "A Demonstration-Research Project in Curriculum and Methods of Instruction for Elementary Level Mentally Retarded Children." My experiences on these two studies and some theoretical considerations form the bases for my discussion with you of ongoing research problems.

Matthew B. Miles (1965), reporting on an experiment in volume one of The Journal of Applied Behavioral Science, calls specific attention to six areas of difficulty in conducting research on any form of treatment. The first area is the criterion problem or selection of an appropriate dependent variable. If the treatment involves a process, the product can often be used to evaluate the process. The criterion problem becomes a major one, especially when the product of the process is some kind of a change in persons. Second, goals are usually stated vaguely; but even if precisely stated and/or operationally defined, the treatment programs based on these goals are usually hard to describe accurately enough for later replication. Third, the experimental sample may in some way be self-selected or selected in some fashion other than random. Fourth, even given random selection, subjects may be sensitized by whatever pretreatment measures may be required.

Fifth, meaningful control or comparison groups may be difficult to obtain. Self-selection in this case often works in a direction opposite to the effect of self-selection of experimental subjects. Finally, the number of subjects may be particularly small. This latter problem area is thoroughly discussed by Jacob Cohen (1965) in his chapter in the Handbook of Clinical Psychology. Among other things, Cohen calls attention to the need for large N's in order to have adequate statistical power. It is common to find reference to the probability of rejecting a true null hypothesis or the alpha error level in the reports of research. It is much less common to find any discussion of the probability of failing to reject a false null hypothesis or beta error level or, to its complement power, one minus beta.

I would like to make some observations about the six areas identified by Miles and Cohen, based primarily on the experiences of those involved in the previously mentioned research projects. Since titles of research projects are not like titles of novels, the general goals are usually rather easily discerned. This was true for the Illinois study and is likewise true for the study currently underway, which I shall hereafter refer to as the New Jersey study. I do this for the sake of consistency and because the teachers and children who are the subjects of this study are all in northern New Jersey, even though Yeshiva University is in the heart of Manhattan.

The treatment aspects of both studies are very important, but for different reasons. Therefore, the need for accurate description of the treatment programs differs, for only the current New Jersey study is even potentially likely to be replicated. The current study employs curriculum materials, consultant services, and teaching methodology as experimental variables. Because of the nature of these three variables, the curriculum materials will be much easier to describe than will either of the other two. Probably no study is ever truly replicated outside of the laboratory, in part because of the complexity of the variables. Nevertheless, it is a challenge to attempt to describe all aspects of the treatment program in such a way that others may profit from your experiences.

The treatment in the Illinois study began with the identification of a sample of educable mentally retarded children as they entered first grade. Half of those so identified remained in their first grade classes, and the other half were taken out and placed in newly established special classes. The progress of these children was followed and evaluated periodically throughout a four year period.

By contrast the New Jersey study focuses on the use of the inductive teaching method in regularly established special classes for educable mentally retarded children. The first problem involved that of selection of teachers who were to receive training in the use of the inductive teaching method. There is certainly some element of self-selection in our sample. Further, some teachers may have been urged to participate by administrative personnel anxious to cooperate in a research project. Undoubtedly, there were other reasons for volunteering as well.

There are a multitude of other problem areas. One involved obtaining a comparison group of teachers who did not receive the training or any of the other treatment aspects of this particular study. Another is adequately describing what is meant by the "inductive" teaching method. The experimental period of the New Jersey study is a relatively short two years, short for a study of this nature. During that time, it appears necessary to observe both experimental and control or comparison group teachers to try to identify the teaching methods which are actually being employed in the classroom. It seems logical to expect the possibility that some of the teachers who receive training in the use of the inductive teaching method may not make effective use of this method for a variety of reasons. It is also conceivable that some of the comparison group teachers may be using methods similar to those being advocated for use by the experimental teachers.

We are attempting to observe the teaching methods and curriculum materials being employed in both kinds of classrooms through a combination of two methods. The first involves having an observer go into the classroom for approximately one-half day per month to observe and record those variables we feel may reflect the teachers' use or lack of use of the curriculum materials and methodology. In addition, we have persons who are tape recording approximately one twenty minute teaching session per month in various subject matter areas in each classroom. Those of you who are classroom teachers can empathize quite readily, I feel sure, with the teachers who are cooperating in this study. Teachers sometimes are reluctant to have observers come into their classrooms and seem naturally even more hesitant about having persons coming in to tape record lessons. Of course, we have tried to explain that we shall use the information gathered from both the observations and tape recording transcripts only for research purposes, and no feedback of any information will be made to supervisors, building principals, or superintendents.

The logistics of carrying out the two kinds of observation and the testing required is still another problem, since there are approximately forty classes in nearly as many school districts participating in this study. I should also point out that we are trying to keep our observers and testers relatively uninformed about the study. This is especially true about the distinction between the experimental and comparison classes. This may be less important in this study since most of our research staff are not from the field of special education and, indeed, many are not even in education.

Another problem area mentioned by Miles is that of the criterion to be used. In the Illinois study, there were three criterion areas. The first of these was intellectual development. There is no lack of possible instruments that might be used to assess intellectual development. The second area was that of academic achievement. Here, too, there are many instruments potentially available, but the validity of their usage with the educable mentally retarded is more questionable than is the case with the instruments in the area of intellectual development. In general, the reading and arithmetic achievement tests appropriate to normal elementary grade youngsters are often appropriate as well for educable mentally retarded pupils. A very important consideration here is to find the appropriate level of the elementary school achievement test to use with educable mentally retarded youngsters. It is my opinion that we have erred more often on the side of using a test level that was too high for the potential achievement of the retarded. A few correct answers, possibly obtained by chance on a multiple choice test, are translated into grade equivalents which give spuriously high achievement levels to the retarded pupil.

The third area was social and personal adjustment. This is the area where special class placement is most often claimed to be superior to regular grade placement. This is also the area where the greatest difficulty is encountered in finding suitable instruments to measure and evaluate progress. This is as ture for the nonretarded as for the retarded and is supported by that fact that the Mental Measurement Yearbook series contains many more tests in this area than in either of the two preceding ones. Experimental methods, rather than any standardized techniques, were employed in the Illinois study in this area. They, too, were less than perfectly satisfactory.

In the current New Jersey study, the areas of academic achievement and social and personal adjustment will be the major criterion areas, although we also plan to look at any possible effects on intellectual development. The previous observations relative to these three areas are pertinent to this study as well. In addition, we face the problem of sensitization to the criterion because of pretests necessary to establish the comparability of the two groups. One method of overcoming this problem, which we are not employing in the current study but which Miles used in his study, involves splitting the experimental and control groups into equal halves. The pretest is administered to half of each group. The other half is not pretested. Posttest measures are administered to all of both groups, which makes it possible to evaluate the effects, if any, of pretest sensitization. Of course, one reason we are not using this design is that we did not know about it early enough.

Next I would like to comment on Cohen's call for adequate consideration of statistical power. In general, such consideration would require the use of larger numbers of subjects in each group than are being used in many studies. Using a conventional alpha level of .05, Cohen would agree to a higher beta level of .20 or power of .80, because he admits that an alpha error is likely to be more serious than a beta error. He points out that with the above error levels, 64 subjects would be necessary for each group in order to be able to discern a medium difference (one-half standard deviation) between the population means of the two groups. For example, in the case of intelligence quotients, this would be equal to a difference of eight IQ points.

Given these considerations, the Illinois study would have power of something less than .80. This is especially true in regard to the post hoc division of the experimental and control groups into high and low IQ subgroups. The low subgroups were composed of 19 experimental and 15 control children. Much larger N's are being employed in the New Jersey study, which should provide adequate power for discerning medium differences between the two groups.

I have tried to describe some of the areas of difficulty in conducting research relating to curriculum and/or methodology. I would like to close with some additional observations, drawing an analogy between research and a chain. Research might be thought of as a chain between knowledge and some idea or potential knowledge. Research attempts to take an idea and see if it is consonant with knowledge or theory. The reason for depicting research as a chain between the two is because we all know that a chain is no stronger than its weakest link. If the idea that leads to the formulation of a hypothesis, treatment, measurement, or a kind of statistical analysis proves to be a weak link, then it cannot adequately be determined whether or not the idea is consistent with knowledge or theory. Miles and Cohen discuss the above, as well as other links or steps in the research process, all of which are potentially weak links.

I have discussed six of these links or problem areas with specific reference to two studies. It appears to me that the area of measurement, which first requires the selection of an adequate criterion or criteria, is presently the weakest of these links. I am currently working on a technique which hopefully will permit us to use presently available elementary level achievement tests in a more valid and incidentally more reliable way. For any test using a multiple choice format, the application of this technique establishes a minimum score which must be achieved before the test results can be considered as a valid measure of the test content. If the minimum was not achieved, a new test at a lower level of difficulty would be administered. This minimum is called the LMS, or Lowest Meaningful Score. It is not a constant value but varies with the number of alternative answers available and with the number of test items answered.

If we give serious consideration to the pleas of people like Cohen who urge researchers to give much more careful attention to the concept of power, which in turn will require larger numbers of subjects to be employed, and if the problem of observing carefully what happens over a relatively long experimental period is to be adequately considered, project budgets will have to be increased substantially to reflect the larger research staffs which will be required.

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HETEROGENEITY — IMPLICATIONS FOR RESEARCH AND DEVELOPMENT

Herbert Goldstein

Over a half century ago, Binet and Simon developed a test of intelligence for the purpose of screening French children who might be unsuited intellectually to the ordinary course of educational events outside of classrooms. Needless to say, the test has served its purpose admirably, both abroad and in this country. The saving grace for the test of intelligence has been, since that time, a more inclusive concept of educability. As a result, tests of intelligence have acquired a benign aspect in that they are no longer considered as instruments that screen children out of inappropriate educational settings, but rather screen children into what is intended to be more appropriate educational settings.

There is a very important distinction here. To screen children out of educational settings is to delimit children from a very important institution — the school — within the total context of their development. On the other hand, to remove children from an age graded educational setting under the assumption that more or less standard provisions are inappropriate and to place such children into another kind of educational setting imply some very important assumptions. First, and of continuing controversy, one must assume that the test of intelligence is serving its purpose with accuracy and dependability. Most of us would agree that all things being equal, this is a fair if not overriding assumption. And if some are not exulted with the indefinite perfectness of the intelligence test, they would agree that things are getting better all the time; tests are proliferating in type and purpose, testors are getting more prodicient, and results are increasingly acquiring meaning and purpose.

Secondly, there is the assumption that the substitute for the regular class is indeed more appropriate as an educational setting. To put it another way, by removing the child from the standard educational program and placing him into a special program, there is the assumption that he would not profit from the former but he would from the latter.

We can leave the first assumption (that of the merits of the intelligence test) to the disciplines concerned directly or indirectly with the issue with the confidence that there will always be continuing investigation and ferments. Our immediate concern is with the second assumption, that of the real and implied merits of educational provisions for the retarded — special classes and all that is claimed for them. This issue for the present transcends the questions conceiving how children get into special classes or what services and support are needed by special classes. When we place a retarded child in a special class, we are saying in a straightforward way that we are placing him in an educational setting that is superior *in toto* to that provided for him in the regular class — not merely as good as, but better than the regular setting. For if we accept "as good as" as a rationale for establishing special classes, we are saying that the real purpose of the special class is to remove the retarded child from the regular class so that it can get on with its mission with a reduction in drag and diversion; and that is just not good enough ethically, morally, financially, or otherwise.

Beyond this, if we say we are putting the retarded into a more appropriate, more productive educational setting, we are saying that it is more productive in the total educational sense. Thus, we must reject the contention that special classes are worthwhile because they contribute in some way to the mental health of the retarded youngster, even though he makes little noteworthy progress in other areas of development. If our effectiveness is only in one aspect of the total educational program, such as mental health, social adjustment, or arts and crafts, then we are operating an offshoot of a mental health program, or a social service program, or a recreation program — but not a full educational program.

How can we tell whether or not we are truly fulfilling our intentions of providing for retarded children an educational program commensurate with their needs? We can, as we have in the past, state the criteria for a sound educational program and then pit the special class against the regular class in a series of comparisons of academic, psychological, and social accomplishments. This has been done a number of times with more in the form of knowledge accruing to the methodology of this type of research than to conclusions uncovered by the research. To put it another way, we haven't been able to bring forth data that would establish the superiority of either the special class or the regular class conclusively: but we have, in examining the procedures in the research, been able to improve the design to the point that we have, hopefully, improved it right out of existence as a sound research pursuit.

Even in the case of the Illinois study of the efficacy of special classes in the development of young educable mentally retarded children, where the special class retardates seem to have gained more in some areas than their counterparts in regular grades, the results are overshadowed by the limitations inherent in the design. And one of the most inescapable conclusions of the researchers is that this type of research is so shot through with unaccountable variables and inadequate instrumentation as to render the study seriously limited in generalizability and meaningfulness. This study, with all that it profited from the procedures of preceding studies, could not answer the question with the degree of conclusiveness required by so important a problem. Beyond the results of the research, this study marks out clearly the fact that there is less homogeneity in comparable educational settings than there is heterogeneity. And while we may equate for MA, CA, numbers of children, and other related facts by the numbers, the qualitative relationships between subjects in complex social and psychological settings escape us at about twice the speed of light and are neither slowed nor illuminated by all of the operational definitions we can generate.

If the objective approach to ascertaining the appropriateness of the special class as an educational setting is unproductive, does this leave the question open? There is always the subjective approach. While this may not be stylish and scientific, it may have sufficient logic built into it to attract some dignity to the conclusions. After all, we have behind us some 60 years of experience and observation. And who would deny that these are entirely without merit? Let us at least attempt to deduce a tentative conclusion.

First, there are the rules of the game. If we are to talk about the relative productiveness of special as opposed to regular classes, we must strive for a modal concept of what constitutes a regular or special class. Once we agree that we are not referring to a certain special or regular class, we can lay out some gross factors for comparison. Let us, for the sake of economy of time and effort, settle on three out of many, namely, competence of the teacher, nature of the total classroom program, and characteristics of children. We can compare both programs on these factors and derive a tentative conclusion.

First is the competence of teachers. Teachers in the regular grades undergo a minimum of four years of preparation with something like a semester of student teaching thrown in. They generally have a semester of reading methods and arithmetic and social studies methods, along with courses in child growth and development; educational psychology; measurement; and work in related areas of science, health, music and the like. Their student teaching is generally well supervised and often with concurring seminars. They learn how to use the materials and guides designed for the regular grades.

In contrast, the large majority of teachers of the retarded come out of the regular grades. Thus, they have had all of the foregoing exposure, but it was 2, 5, 10, or 20 years ago. Some go directly into a special class from the regular grades and enroll for special class preparation while on the jobs. One or two evenings a week and/or during the summer session, they gradually put together enough credits to merit state certification. They generally get a survey course in the education of exceptional children and a course in measurement of exceptional children. They may also get something in the nature and needs of the retarded. Somewhere along the line, they get one semester of curriculum and methods; and they often get credit for practice teaching because, by this time, they have been with their special class for a year or two. If they student teach during the summer, it is usually two, three, or four teachers at a time per room for four or six weeks. In clock hours, it doesn't add up to much. Which teacher is better equipped for the job?

Please note that I did not say that all teachers of the retarded are prepared in this way — just the majority. In all justice to the teacher, is her preparation her doing? Obviously not. If the college or university structures a 12 to 15 credit program on a catch as catch can basis, that is what the teacher is limited to, no matter how good or bad her intentions. It is important that this be kept in mind.

Next is the classroom program. The regular class teacher has a full day's program everyday, with checks and balances usually present. She has teachers' guides for almost every subject and a curriculum that unites all of the grades. She can compare notes with the teachers in grades preceding and following hers, and she has a full time principal equivalent to provide leadership and guidance. She also has a standardizing history, based on her experiences in her teaching grade.

The special class teacher is usually either shopping for or helping to build a curriculum, despite the fact that there is no basis for her expertness to do either. She has no school accepted, teaching texts in series or otherwise. She is generally out of touch with other special class teachers and she sees a supervisor semiannually or annually, if at all. Which has the substantive elements of an educational program ready and active?

Finally come the children. We need not go into much detail about this factor. I believe that we can agree that the special class teacher has the children who are most heterogeneous on just those factors that are important to teaching and learning. If one needs evidence, there are some 400 studies and articles on the mentally retarded reported in the last three issues of the Review of Educational Research. Read the summaries of the studies of intellectual development, achievement, social adjustment, and the like, and you will see how and why any 12 to 15 retardates in any given class represent such a wide variety of developmental phenomena that a concentrated, effective job of teaching is almost an impossibility.

What does this heterogeneity mean, and what does it indicate? For one, it means that we have for many years attributed to intelligence tests a property which they have never had. These tests are sound bases for classifying children, if we can agree on the clusters as being meaningful. But they are not, nor have they ever been, bases for decision making in instruction or remediation. Some tests tell us that a child is educable. But they do not indicate what should be taught in reading, for example, or the style required by the child. Other tests tell us that the child may be brain injured, minimally or otherwise; but this is a medical classification, and it tells us nothing about having characteristics. Teachers have been struggling for years with classificatory data presented as though they were diagnostic data, and we have expected the teachers to act as though the data were diagnostic. Furthermore, we have based our teacher preparation on the same basis, struggling all the time to present MA and IQ as related to specifics in learning and acting as though though they have clear cut bearing on precisely what teachers do in the classrooms.

What meaning does this degree of heterogeneity in children's learning characteristics have for research in curriculum? Obviously, it has a great deal. Until we begin to apply diagnostic instruments effectively, we will not be able to describe retarded children in those terms that impinge directly on learning; we will continue with manifold characteristics in each classroom. Once research in learning characteristics begins to bear results and we can at least begin to classify children in accordance with shared learning abilities and/or disabilities, we can begin to identify specifics in subject matter and teaching systems that are relevant to the characteristics of the children. The present random nature of classroom programs must inevitably give way to programs with focus and specificity in substance and system. In time, and with careful research, the centrality of the focus should shrink in dimensions to sound applications. Finally, teacher preparation programs will lose their speculative construction and their whimsy. We will be able to prepare highly specialized teachers, as well as generalists. We will know more surely what the psychological foundations of teaching ought to be, as well as what constitutes the elements of specialization that make a special class teacher so special.

Whether you are aware of it or not, heterogeneity in the special classroom, in the curriculum, and in the teacher preparation program has been the huge stumbling block impeding the education of the retarded. The sharp taps of meaningful research will make possible the ascendency of homogeneity in learning characteristics in the classroom and, more probably, an appropriate educational program for the retarded.

IMPLICATIONS FOR THE INITIATION OF WORK PROGRAMS IN LOCAL SCHOOL DISTRICTS

Oliver L. Hudson

Montgomery County, which is the metropolitan area of greater Dayton, Ohio, consists of ten local school districts, one of which is Northridge Local District. In local districts in Ohio and in the United States are located more than half of the classroom units for children with a mental handicap. Likewise, since most programs for these youth began at the intermediate level, a larger number of students are now ready for on the job experience. Unlike the highly technical organizational structure of the large city systems (Lansing, Michigan; Cincinnati and Dayton, Ohio; New York; and Fresno, California), much of the responsibility for the initiation of new programs places added responsibility on local superintendents and principals of small school districts. Since added personnel are not usually added in line positions, special class teachers who are fully trained are often consulted and asked to offer assistance in developing an organizational plan. When such considerations are to be given, the special educator is often asked to serve as the liaison between the school and the place of employment.

Philosophy of the Program

Mentally handicapped youth should have opportunity for many experiences with nonhandicapped peers if he is later to make adjustment to a predominantly normal society. Society should have contact with these youth of lesser ability if they are to accept and better understand handicapped individuals as adults. Because of this existing philosophy and the advances being made in the educational programs for exceptional children, employers are becoming more favorable in their attitudes toward the integrated placement of handicapped personnel.

Educational Planning

The educational program for these youngsters is designed to meet his psychological, social, and emotional needs:

1. To provide experiences that contribute to a healthy personality.
2. To provide experiences that help the child develop an acceptable attitude toward self, family, school, community, and country.
3. To provide experiences that will develop the skill subjects (language arts and arithmetic, coupled with social living skills).
4. To prepare the child to recognize his limitations and abilities and to train him realistically for life in the community, employment, and in the activities of the group.

A planned occupational program for mentally handicapped children includes twelve years of school experiences. It provides for the kind of practical training that will keep children in school and prepare them for their role as contributing members of society. Emphasis is placed on communication skills, personality traits, and prevocational skills. In the junior high program, school experiences are extended to include the survey of job interests and the requirements for such positions. Students concentrate on filling out application blanks; learning about job opportunities available through the newspaper; and learning about wages and deductions, taxes, insurance, Social Security, and the importance of good grooming and appropriate dress. At the ninth and tenth grade level (ages 15 and 16 respectively), students carry a full schedule of classroom instruction and are encouraged to participate in on the job training within the confines of the school in such services as cafeteria helpers, school porters, and routine clerical workers in the office and library. (Montgomery County Curriculum Guide used for sequential development.)

Problems, Needs, and Solutions

Problems become more and more and more complicated for the mentally handicapped child when he reaches the age when he must leave the protective discipline of the school and make the transition from the academic phase of the program to entrance into a job in accordance with the demands of the world. These problems continue to persist when stimulated, inschool work experience has been granted. It seems logical to assume that opportunity for work training outside the school should develop attitudes, habits, and understandings needed to get and to hold jobs and provide the young adult with an understanding of the work a day world, so that he may be better able to adjust to life after he leaves school. Such an adjustment will make for a better community, with a much more self-reliant individual contributing to the economy of the locality in which he lives. This type of program should serve as an incentive for youth to stay in school and alleviate the possibility of the general problem of dropouts and the general problem of unemployment among the eighteen year old groups in our society. Opportunity for a work experience, training program on the job and under school supervision seems a logical solution to meeting the needs of prospective and productive full time employees.

Postschool Provisions

A postschool program should include (a) a school-work experience program, (b) a job placement program, (c) a further training program, and (d) a followup program. The purpose of the postschool program is to help the slow learner transfer the skills learned in school to community situations and to provide supplementary training and counseling. Allied agencies such as the Bureau of Vocational Rehabilitation offer schools supplementary counseling and guidance services, and the Ohio State Employment Service offers assistance in placement. The total program is the responsibility of the school utilizing such supplementary services.

The Report of the President's Panel recommends that if the potentials of the retarded are to be realized, every retarded youth must have appropriate vocational rehabilitation and related services before, during, and after the termination of his formal education. These services must include provision for (a) training courses in appropriate vocational areas, (b) joint school-work experience programs operated cooperatively by the school and vocational rehabilitation agencies, (c) clearly defined and adequately supervised programs for on the job training of retarded workers , and (d) coordination of vocational counseling throughout the entire school program. Failure of the public school, rehabilitation services, and placement agencies to work together toward their common objective is the major barrier toward improved vocational rehabilitation services for the retarded.

Advantages of a Work Program

A school work-experience program lends opportunity for the worker student to have first hand experiences in:

1. Developing confidence in his ability to successfully perform various jobs for the purpose of earning his own living.
2. Dealing comfortably and courteously with the employer and other employees (getting along with his fellowmen).
3. Appreciating the value of promptness and dependability as essential to holding a job.
4. Developing ease and efficiency in dealing with customers and strangers.
5. Developing meaningful vocabulary, skills, and accuracy required for various jobs.
6. Assuming responsibility for taking directions and following directions to see a job completed without supervision.
7. Augmenting his financial resources and encouraging him to stay in school.
8. Developing an appreciation of the value of money earned.
9. Developing a concept of ways to spend money wisely.
10. Understanding the relationship between education and work success.
11. Exploring various fields for possible vocational interest.
12. Broadening the concepts of the work world and its conditions.
13. Developing a feeling of the value of work in establishing a home, maintaining a family, and pursuing leisure activities.
14. Developing wholesome attitudes as a citizen of the community.
15. Developing a sense of security and independence as a contributing member to the formation of a better community.

The advantages of a work program to the school include:

1. Providing the school an opportunity to relate school to work. (Too expensive to set up in the school.)
2. Increasing the school's ability to hold students in school for a longer period of time.
3. Providing the basis for a realistic class program for slow learners.

The advantages to the community include:

1. Providing the community with young people who are better and more realistically trained.
2. Reducing employers' costs due to frequent job changes, since well prepared workers tend to lessen job changes.
3. Increasing cooperation between school and community.

Organization of an Educational Work Experience Program

An educational work experience program for slow learning children in Ohio (EMR's in all other states) in a local district should be a part of the total curriculum offered these students and should comply with the legislative requirements of the state department.

In the senior high school, or grades nine through twelve, the inschool program pattern should conform as closely as possible to that of other students. The adademic areas (English, social studies, science, health, and mathematics) will need to be scheduled to meet the state standards. This includes three units of English; two units of social studies, one of which must be American history; one unit of mathematics; one unit of science; one unit of health and physical education; and the opportunity to earn eight additional units in electives. The electives may be taken all or in part in a work experience program, since a complete slow learner program includes on the job training under supervision and on school time. The plan may be full time employment or the cooperative plan. Under the full time plan, high school entrance is timed so that the student will reach the age of eighteen by the time he is a senior, so as to allow him time to mature and to meet the requirements of jobs offered by interstate commerce regulations. His senior year is spent entirely on the job, working a full, eight hour day and returning to evening school one or more nights per week for study related to job training. This plan may include keeping the student in school longer than four years. Under this plan, out of school employment for an eleventh grader is for one-half day with the other half day allowed for school.

Under the cooperative plan, matched pairs of students cover a full time job. Under this plan one pupil works full time for a specified period, while his "double" goes to school; at the end of the co-op period, the two exchange places. In some school districts the co-op period is as short as two or three weeks. With all of the adjustments to be made in both school and work situations, it would appear that for slow learners the co-op period should last not fewer than six to nine weeks if maximum benefits are to be secured from the experience.

Recommendations for Graduation

These recommendations include:

1. Satisfactory completion of the special class program of children of ninth grade age (14-15).
2. A full schedule of high school classroom instruction during the tenth grade (age 15-16).

3. Half days in school, half days supervised work experience during eleventh grade (age 16-17).
4. Full time school supervised work experience during twelfth grade (age 17-18). This would entail satisfactory completion of educational work experience program and satisfactory achievement in subjects taken in school, as well as recommendation by teacher counselor based on cooperativeness; emotional stability; courtesy; respect for the rights and property of others; and ability to follow directions, care for and properly use tools, complete a task, accept criticism, recognize safety measures, and apply knowledge and skills learned in special class programs.

Job Areas Where Slow Learners May Be Placed

The general consensus reflects the effects of automation on employment of individuals at the unskilled and semi-skilled levels in abolishing many jobs normally held by slow learners. Upon a recent survey of the community, it is found that supply has not met with demand in the service areas but that the community service is one area which is still developing and growing.

1. Food service: waitress and waiter, dishwasher, counter girls, bus boy or girl, and food preparation.
2. Janitorial helpers: warehouse and storage helpers.
3. General helpers in a garage: cleaning and polishing cars, lubricating and changing oil, fixing flats, general cleaning around garage, and helping with and doing minor repairs.
4. Helping with office work: file clerk, sorting and counting paper, and messengers.
5. Nurses' aides: feeding, bathing, and cleaning.
6. Grocery store work: handling and placing stock, carrying out, and check out girls (limited number).
7. Hospitals: dietary, attendants (maternity and surgery), X-ray transportation, supply, sterilization room, etc.
8. Machine shops.

Duties of Teacher, Diagnostician, Guide, and Coordinator

The expansion of work experience programs places new demands on special teacher educators by the developing concept of habilitation in which special education is seen as a closely integrated segment of a complete educational vocational continuum. The continuum begins with an educational diagnosis and continues through the life of the mentally handicapped. This places new demands on teachers, upon whose shoulders rests largely the success or failure of the program. Problems solved before they appear is in accordance with the old theory, "An ounce of prevention is worth a pound of cure." In many local or small school districts, the school may give a special class teacher released time to assume the responsibility of a diagnostician, a guide, and a coordinator. As the program grows, it is advisable to employ a full time coordinator, as duties adequately performed demand much time and ability.

Coordinator	Diagnostician	Vocational and Personal Guidance
1. Inform the community	Acquire knowledge of need for such a program and the advantages of such program to the student, to the employer, and to the community.	Understanding and acceptance of the program is brought about through personal contact with employers in institutions, industries, and business concerns who are known to have jobs in unskilled, semiskilled and service areas.

2. Make decisions on instructional phases of the school program.	Acquire knowledge of the limitations and abilities of the student worker.	Make suggestions for incorporating the nature of the work world in planning through the development and coordination of curriculum materials, instruction, and methods to the educational diagnoses.
3. Job surveys.	Acquire knowledge of nature of the job, academic requirements needed, hours of work, remuneration, advantages and disadvantages of job.	Advise with reference to matching characteristic of student worker with the demands of the job.
4. Job placement	Acquire knowledge of areas where jobs may be secured.	Counsel parents on goals of the program, and secure permission to enter the child into parent-school-student work agreement. Counsel students before job interviews and periodically while on the job. Make suggestions and followup on savings and spending money wisely.
5. Visit employers periodically.	Evaluate the working conditions and the adjustment of the students.	Make suggestions for the coordination of in-school disciplines with other disciplines in the postschool phases of habilitation.

Conclusions

In initiating a work experience program in a local school district, it is recommended that:

1. A sound legislative program be developed.
2. Careful selection of a teacher to be considered.
3. There be complete involvement of the school, the community, and its facilities and agencies.

MENTAL RETARDATION PROGRAM OF THE NATIONAL INSTITUTE OF MENTAL HEALTH

Floyd E. McDowell

The National Institute of Mental Health supports activities related to mental retardation in all its major program areas. Specifically, the NIMH is responsible for program efforts in the mental health aspects of mental retardation, with responsibility for planning, stimulating, administering, and coordinating a program of research, training, technical assistance, and demonstrations. Through these diverse avenues and within the context of a comprehensive and integrated approach, special attention is given to (a) the effects of the cultural deprivation of children, (b) the aspects of mental illness which grow out of the life experiences of the retarded, and (c) the area of learning, with primary emphasis on learning in psychologically disordered states, secondary emphasis on learning in normative states, and careful attention to the special learning problems of the retarded.

The Institute's mental retardation program includes basic research grants, intramural research, mental health project grants, hospital improvement demonstration projects, training and manpower utilization support, consultation services, publications, research utilization conferences, technical assistance projects, collaboration with other governmental agencies, and cooperation with professional and private organizations.

The NIMH core research grant program in mental retardation focuses on three major areas: the biological, psychological, and sociocultural factors in mental retardation. In the etiology of mental retardation, the primary focus of the research grant program is on psychological, social, and cultural factors. Included are a variety of studies focusing on variables such as cultural deprivation, early emotional trauma, social isolation, and inadequate infant care and handling. Experimentation with various treatment modalities continues to be a major emphasis in the NIMH research program on mental retardation. These studies range in scope from very broad interdisciplinary efforts to establish a controlled therapeutic environment through studies directed toward the training of institutional attendants who, in turn, would apply operant conditioning procedures to improve the self-care ability of retarded children.

Research on the etiology and treatment of mental retardation is based on a broad effort to understand such important variables as the characteristics of language development of the retarded, the retarded child's cognitive abilities, and his learning capacities. For example, NIMH supports a growing program of basic and applied studies to identify the underlying parameters of slow learning in the mentally retarded. Results have shown that the secret of successful training of moderately retarded children lies in the engineering of their attention through increasing the attention value of the relevant cues. Mental age scores have also been found to be good predictors of speed in learning. Other studies have highlighted the role of failure experience in shaping the motivation of retardates in their response to learning tasks and have shown that tasks can be set up to minimize the importance of this motivational complex.

Support under the mental health project grant program is directed primarily at the application of new approaches to the care, management, and training of the retarded, in home as well as in institutional and community setting. Activity supported in this area includes programed reading instruction for the retarded child, programed learning for the retarded blind, development of self-help skills, and use of day centers as a locus for teaching vocational skills to adult retardates. Some projects are evaluating a variety of training and recreational programs designed to enhance the retardate's prospect of a meaningful community role.

Several other projects illustrate the range of activities supported. These include studying adaptive behavior as part of the criteria for diagnosing mental retardation, developing methods of overcoming the intellectual and emotional handicaps imposed on young children through early deprivation, providing a programed curriculum which can be used with the mentally retarded in community and residential facility settings, making a comprehensive study of the legal aspects of mental retardation, and providing an occupational day center with a sheltered workshop facility and program for adult retardates who are presumably unemployable.

Beginning in fiscal year 1964, the mental health project grant program was expanded to include the hospital improvement project grant program. This hospital improvement program provides additional funds for demonstrations of improved methods of care, treatment, and rehabilitation of the mentally ill and mentally retarded. Every state residential facility for the mentally retarded can receive support under this program for a period of up to 10 years. Each residential facility may develop a series of one or more individual projects lasting from 3 to 5 years and can receive up to a maximum of $100,000 each year. These projects are not research projects, basic support programs, nor training per se, but are specifically focused on use of current knowledge to demonstrate improved programs of care and services in state residential facilities for the mentally retarded. Overall objectives of the hospital improvement projects for the mentally retarded include (a) improving the quality of resident care, (b) strengthening services to residents, (c) encouraging transition to open residential facilities, and (d) developing relationships with community programs concerned with mental retardation. Projects are planned to help the residential facility move toward a future role as a part of a comprehensive state and community program for the mentally retarded.

A major emphasis of the hospital improvement demonstration is on improving treatment, training, and habilitation programs for the long term, severely and profoundly retarded resident, including the multiply handicapped. The accumulation of nearly total nursing for the retarded constitutes a serious drain on the limited staff of state residential facilities, results in the development of health problems of epidemic proportions, and seriously limits staff expectancies of these residents and subsequent training efforts. Projects are enabling improved medical treatment, use of new training and developmental methods based on learning theory and principles, and new uses of existing staff at all levels. Although the program is new, it is already clear that many of the severely and profoundly retarded residents are responding. Some are able to participate in more advanced developmental programs of the residential facility, and others are returning to the family and community. There is evidence that this response is changing staff attitudes, and deinstitutionalizing staff expectancies and program. It is also clear that for many of these residential facilities, a project stimulates improved residential facility-community program coordination and more effective use of resources, including those of the community and nearby college and university personnel.

Several of the programs of the NIMH are directly concerned with the training of personnel who will either provide service or conduct research in the area of mental retardation. In addition, almost all programs in psychiatry, psychology, social work, and psychiatric nursing provide experience relevant to mental retardation as an integral part of the training of personnel in these disciplines. In recent years, support for training in mental retardation has been broadened to include programs in the biological and social sciences, as well as pilot projects in a number of related areas. Significant expansion of training support related to retardation occurred in fiscal year 1964 with a new program of inservice training designed to upgrade the training of house parents and attendants in residential facilities for the mentally retarded.

Consultation services and surveys are a part of the NIMH mental retardation program. Consultation is a continuous service rendered by NIMH staff of the central and regional offices and is sometimes provided by nongovernment consultants engaged by the NIMH. Upon request, the NIMH conducts surveys in this field.

Technical assistance projects and research utilization conferences are utilized by the NIMH mental retardation program. Technical assistance projects are state or regional workshops or seminars which are used as a method of providing professional assistance and consultation to state mental health programs. Research utilization conferences are small national meetings which bring together researchers, experts, practitioners, and administrators to discuss and explore areas requiring special attention.

Statistical activities related to mental retardation include information on inpatient mental retardation facilities, retardates served by outpatient psychiatric clinics, day-night units which serve retardates, and a psychiatric case register project in Maryland. Plans are underway to collect annual, nationwide information about (a) inpatient facilities for the mentally retarded, (b) psychiatric clinics either serving or restricted to the mentally retarded, and (c) mental health clinics for the retardates which have regularly scheduled, psychiatric consultation.

The NIMH believes the Community Health Centers Program, initiated in 1963, will have a definite role in providing services related to the mental health needs of the mentally retarded. The centers will also serve as a referral source to provide needed services that are not available in the centers.

Since 1964 a mental retardation information program has been operated as part of the National Clearinghouse for Mental Health Information. Because knowledge about mental retardation comes from many scientific disciplines and professions, this service will improve both research and practice and thus have a decided effect on the prevention and treatment of mental retardation. To maintain this service, the National Clearinghouse for Mental Health Information, under contract with the American Association on Mental Deficiency, collects current literature on mental retardation, writes informative abstracts, indexes the literature in depth, compiles annotated bibliographies on special topics, and prepares critical reviews.

During 1964 and 1965, a total of 2,900 current articles, books, and monographs were collected, abstracted, and indexed. To provide a more extensive coverage of information for retrieval purposes, an additional 3,500 indexed abstracts of documents published from 1957 through 1963 were recently added to this system. Special annotated bibliographies have been prepared on: "Programed Instruction with the Retarded," "Literature for Parents," "Application of the Stanford-Binet and Wechsler Intelligence Scales with the Mentally Retarded," "Nursing and Mental Retardation," "Family Care and Adoption of Retarded Children," "Psychotherapy with the Mentally Retarded," "Recreation for the Retarded," "Counseling Parents of the Mentally Retarded," "Sheltered Workshops for the Mentally Retarded," and "Films on Mental Retardation."

Review articles and critiques have been prepared by experts in mental retardation on: "Mental Retardation: Definition, Classification, and Prevalence," "Research on Linguistic Problems of the Mentally Retarded," "Attendant Personnel: Their Selection, Training, and Role", "Research on Personality Disorders and Characteristics of the Mentally Retarded," "Effects of Severely Mentally Retarded Children on Family Relationships," "Factor Analysis and Structure of Intellect Applied to Mental Retardation," "Counseling Parents of the Mentally Retarded," and "Genetic Aspects of Mental Retardation." The abstracts, annotated bibliographies, and reviews appear in the quarterly journal Mental Retardation Abstracts, which is distributed gratis to approximately 8,000 individuals engaged in research and practice in mental retardation and is also for sale by the superintendent of documents.

The fact that this information activity is part of the National Clearinghouse for Mental Health Information means that information obtained and analyzed form many other fields (such as delinquency, psychopharmacology, occupational mental health, child and community mental health) can be brought to bear on problems of mental retardation. Future goals include expansion of this service, particularly an increase in the coverage of the world's literature and research projects, improvement of the system for processing and disseminating available information, and provision of additional analytic and evaluative reviews of the state of knowledge in the area of mental retardation.

The NIMH mental retardation program includes international activities. The Institute participates on a Department of Health, Education, and Welfare committee for Inter-American Workshops on Mental Retardation. This program is a signficant alliance for progress with our northern and southern neighbors. The NIMH sent a representative to Geneva in September of 1965 at the request of the World Health Organization. This person represented the United States at a meeting on mental retardation attended by representatives from England, Denmark, Australia, and Russia. This committee reviewed the world wide status of mental retardation and made recommendations concerning the role of the World Health Organization in this field. Tentative plans were made for a broader WHO sponsored conference on mental retardation, which will probably be held in Geneva in 1967.

The NIMH Committee on Mental Retardation is planning a series of seven research oriented, international conferences on mental retardation, and the NIMH is responsible for two of these conferences. Planning is now under way, and the first conference on legal aspects of mental retardation will probably be conducted in the early summer of 1967. The second NIMH conference is concerned with sociocultural aspects of mental retardation and will be held in the spring of 1968.

HOW TO ORGANIZE FOR THE DEVELOPMENT OF AN EFFECTIVE CURRICULUM FOR THE EDUCABLE MENTALLY RETARDED

Norman J. Niesen

Today there is wide spread public and professional acceptance of the belief that most of the mentally retarded can be helped to become self-sufficient and contributing members of society, if they receive adequate education and other necessary services. A recent publication (Baumgartner, 1965) described the present climate surrounding the condition of mental retardation as a revolution in understanding, research, education, recreation, employment, and maternal and child care. The impact of this revolution is being felt heavily by special education personnel everywhere. Expansion and extension of special education programs in the form of preschool, high school, work-study and postschool classes are progressing at a highly accelerated rate, often without the benefit of a sufficient supply of trained people to teach these classes. In addition, new knowledge and thinking regarding learning, environment, and culture are making their effects felt in programs for the retarded.

The net result of this present state of affairs is the development of a seeming awareness on the part of most special educators that the time has come to examine what is being taught to the mentally retarded in special education programs. Consequently, there is an emergence of widespread interest in developing effective special class curricula for the mentally retarded. It is to this subject that this paper is directed. The development of effective curricula for the retarded is influenced to a large degree by attention to three categories of considerations. These are:

1. Considerations related to some basic principles which may serve as a foundation for curriculum development.
2. Considerations of some factors which influence the structure of curriculum content.
3. Considerations of some organizational techniques which influence the operation of a curriculum project.

All of the considerations in these three categories have been used by the Division of Special Education of the Cincinnati Public Schools to guide a ten year curriculum development project. The division, through this project, has recently developed a curriculum guide which has received wide acceptance and recognition. It is believed that the considerations to be discussed had some importance and validity in the development of this usable curriculum guide.

Some Basic Principles of Curriculum Development

A curriculum development project should have its foundation built on certain guiding principles. These guiding principles are:

1. Teachers, supervisors, and administrators must be involved in its development. In short, developing an effective curriculum takes the efforts of many people, not just a few. Gone are the days when the development of a curriculum guide or a course of study was the sole responsibility of the specialist, supervisor, or administrative staff. Curriculum developed by the specialist with little teacher involvement usually is not fully understood, accepted, or implemented by teachers in their classrooms. Most specialists are too far removed from children, classroom practices, and school problems to do much more than bring an armchair approach to solving the problems which confront teacher and child in a learning situation. Better solutions to educational problems and a generally higher grade product are developed when interested teachers are actively involved in determining the content and nature of the curriculum which they are expected to implement. The first consideration, then, is to involve as many interested people as possible in the curriculum project, especially those who have first hand experience with children.

2. Curriculum development takes time, effort, interest, research, dedication, and hard work. Many curriculum projects fail because people who direct or participate in them do not realize the degree of time and personal investment necessary for the development of a first rate product. Perhaps early in the thinking of any curriculum project, the idea should emerge that curriculum development is a continuous ongoing process which really has only a beginning and never an end.

3. Participants must have an understanding of what is meant by curriculum development. Unless the participants in the project have a clear understanding of what is implied by the term curriculum, a limited product is likely to result. First, an understanding must emerge that the concept of curriculum means the sum total of those experiences which pupils have under the guidance, supervision, and direction of the school. The second understanding of curriculum which must emerge is that curriculum development as a process is nothing more or less than determining the what, when, and how of teaching, modified by clear analysis of the why of these processes. The curriculum development process may be viewed as an equation: $CD = \frac{\text{What+When+How}}{\text{Why}}$.

If more projects would adhere to this basic concept there would be fewer disjointed, poorly organized, and incomplete curriculum guides published.

4. A curriculum project must be guided by long range goals. A curriculum project must be guided by an understanding of the end product it hopes to achieve. In short, a curriculum project must have long range goals. Ragan (1961) states that educational objectives emerge from a combination of factors, including a philosophy of education, a study of contemporary society, a knowledge of children and the learning process, and the thinking of specialists. Certainly all of these sources should be utilized in arriving at a statement concerning the long range goals which a curriculum project sets forth to guide its activities.

5. A curriculum project must be based on an understanding of principles of human growth and development and upon the belief of the inherent worth of each child. Any curriculum project in the area of special education must be guided by a thorough understanding of the way handicapped children grow, develop, and learn. Equally important is an acceptance of the belief that each child has intrinsic worth and dignity, no matter how mentally limited. Curriculum development which is not guided by this kind of thinking usually develops expectancy levels of achievement which are not realistic for the majority of children and thus becomes worthless as an aid to the instructional process.

Factors Related to Curricular Content

The development of an effective curriculum project must give attention to a second set of considerations which relate to and influence the content of the curriculum for the mentally retarded. Probably the first issue which must be resolved is related to selecting a format or organizational structure for the curriculum project. Traditionally, special education classes for the mentally retarded have used such curricular organizational structures as subject matter, activity programs, experience units, and cores of work and life problems. Much has been written about the advantages and disadvantages of each of these organizational structures. In short, probably any of these organizational structures can be adapted to do an adequate instructional job, provided attention is given to certain consideration which influence the selection of curricular content. Following is a review of these considerations:

1. The nature and needs of the learner should influence curricular content. Even though the retarded child is more like, than different from, ordinary children, he has special needs which are related to his handicap. The degree to which these needs are met will determine his adjustment in society. Essentially, the school program must equip him to survive in a highly competitive, symbol oriented society. The educable mentally retarded child is poorly equipped for active and full participation in this kind of society. Therefore, a major task confronting the developers of curriculum is related to the selection of those essential elements which are necessary for the learner's survival at each stage of his development. These elements which are directly related to his needs become the basis of the curricular content for the special class program.

2. Society's demands should influence curricular content. A second dimension to the selection of curricular content is related to the demands that society makes on all of its citizens. By and large, society will make few concessions for the condition of mental retardation. Therefore, those engaged in the development of curriculum must be cognizant of society's expectations for its citizens at each level of their development. The school program and its curricular content must reflect societal expectations if they are to prepare the mentally retarded pupil for survival and participation in his community. The failure of special class programs is often related to the fact that expectancy levels have been unrealistically low and the learning environment so sheltered that pupils have not been prepared to meet even minimum standards set by society. A second consideration, then, for the development of effective curricular content is a thorough and realistic understanding of what society expects.

3. The content of curriculum must have purpose, meaning, and utility for children at each stage of their development. The mentally retarded learn best through personal involvement with those things which have meaning and use to them. Effective learning requires reinforcement. Reinforcement can be accomplished by selecting activities which have utility in helping pupils meet the problems which confront them daily as they live, grow, and develop. Curriculum content, therefore, must be carefully selected so that it has purpose, meaning, and utility for the learner.

4. The curricular content should be guided by goals which are stated in terms of specific behavior. Curriculum goals which give direction to a classroom program should be stated specifically, so that concrete help is provided for teachers. Ultimately, learning for the mentally retarded should be reflected in observable or measurable behavior. By stating curriculum goals in behavioral terms, teachers will be helped in identifying needs and developing meaningful learning experiences for pupils.

5. Curricular content should have scope and sequence. The content selected at each instructional level should provide for the sequential development of skills, understandings, habits, and attitudes. In addition, provision must be made for sequence of learning to become ever expanding in its application to solving problems of living.

Some Organizational Techniques for Curriculum Development

A curriculum project requires that people work together effectively and productively. Certain organizational techniques, if utilized, will facilitate effective production. These are:

1. The experience of participants should be utilized fully. A curriculum project should be so structured that groups are organized around activities and problem solving in which the participants have considerable interest, experience, and skill. For example, the content of what should be covered in a developmental reading program for preadolescent retarded pupils should be decided by teachers working with this age group. Similarly, the skills of the high school teacher of the retarded should be utilized to solve curricular content problems related to the work-study program. In short, the what and the how should be decided by the teachers who are expected to implement the curriculum in a classroom setting.

2. A curriculum project must be structured so that leadership, direction, articulation, and coordination are provided. A curriculum development project does not usually emerge merely by bringing a group together to discuss instructional problems. The emergence and effectiveness of a curriculum project is directly related to the degree of structure provided. Structure implies that the project must have direction, and direction means that leadership must be present. While leadership may reside in a single individual, it is usually more effective if this responsibility is entrusted to a small group. This essentially is the concept of a steering committee. This concept permits a small group to decide on the structure and direction for the larger group. The function of this leadership committee is sevenfold: (a) develop operational procedures, (b) set priorities for project concern, (c) provide for the necessary articulation and coordination among groups and their activities, (d) resolve issues and problems growing out of small group activity which affect the course of the total project, (e) evaluate and edit the work of small groups, (f) put the guide into publishable form, and (g) provide for continued reevaluation and modification of the guide.

An illustration of how the committee might function may be seen in this example. The steering committe may decide that a meeting will be devoted to the delineation of curricular content related to health. Prior to a meeting of all interested teachers, the steering committee, with the help of resource people, research, and utilization of personal experience, will develop a skeletal outline of desired goals for each level of the health program for the mentally retarded based upon a predetermined rationale.

At the meeting of the large group of participating teachers, the chairman of the steering committee will present the problem under consideration. Small groups of teachers, according to their instructional levels, will meet to discuss, modify, and add to the skeletal goals developed by the steering committee. In addition, activities which will implement the goals will be devised by these small groups. This material developed by each small group will be submitted to the steering committee for revision and editing. The makeup of the steering committee should be composed of representatives from each small group. These representatives will play leadership roles in the small group activities. This procedure provides for a builtin method of control, articulation, coordination, and direction of the total project. This organizational technique may also provide for the employment of resource specialists when problems arise which require competencies beyond those found in the groups.

In summary, three categories of consideration related to the effective development of curricula for the mentally retarded were discussed. These were (a) considerations related to some basic principles which serve as a foundation for curricular development, (b) considerations of some factors related to curriculum content, and (c) considerations related to organizational techniques for group effectiveness and productivity.

Considerations in each category were detailed. In conclusion, if the principles discussed are put into effect in curriculum development projects in your community, the product which will emerge will be a good product because it will have meaning, purpose, and usability to teacher and pupil.

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PERFORMANCE OF EDUCABLE MENTALLY HANDICAPPED STUDENTS OF DIFFERING READING ABILITY ON THE ITPA

Gilbert Ragland

The purpose of this investigation was to determine whether educable mentally handicapped students who were retarded in reading one year or more below the level of reading predicted on the basis of their mental age (designated retarded readers) and those who were reading at a level reasonably commensurate with their predicted reading capacity differed in performance on the Illinois Test of Psycholinguistic Abilities (McCarthy and Kirk, 1961). Retardation in reading of no more than one-half year below the level predicted on the basis of mental age was considered reasonably commensurate with predicted reading capacity.

It was revealed in the results of a survey of the literature that minimal research had been devoted to a systematic study of the ways retarded readers differed from nonretarded readers among educable mentally handicapped students. It was generalized from the results of the survey of the literature that educable mentally handicapped students were capable of reading at a level commensurate with predicted capacity but had consistently failed to accomplish this. It was found that agreement was lacking as to the specific factors which contributed to or influenced reading achievement by educable mentally handicapped students.

It appeared that further systematic study was needed to identify significantly differing variables between retarded and nonretarded readers among educable mentally handicapped students. The Illinois Test of Psycholinguistic Abilities was selected to use in this investigation because it was designed to provide a standardized and systematized means for assessing and identifying linguistic deficits of handicapped children. Because it was contended that the ITPA assessed foundation abilities upon which reading skills were built, it was hypothesized that, among mentally handicapped students, retarded readers would perform at a deficient level on some areas of the ITPA.

Procedure

Two groups of fifteen educable mentally handicapped students each were selected from the regular classes of a residential institution for mentally handicapped persons. Each group contained approximately equal numbers of boys and girls. The measured performance by each subject on an intelligence test and on reading tests was important in the selection and assignment of subjects to the group.

The performance on the Wechsler Intelligence Scale for Children (WISC) was utilized to establish IQ's and mental ages. The Gray Oral Reading Paragraphs Tests and the Metropolitan Achievement Tests were the reading tests which were utilized. In general, educability of potential subjects was established as a function of their having been assigned to one or more educable level classes for one year or longer and having scored within the IQ range of 48-79 on the individual intelligence test. Mental ages were derived from the achieved results on the WISC and were utilized in conjunction with the performance results on the reading tests for assignment to one of the two groups. Those conforming to the prescribed definition of a retarded or nonretarded reader were assigned to the appropriate group.

Comparisons between group mental ages, chronological ages, intelligence quotients, years in school, expected reading achievement, and actual reading achievement were made. The two groups did not differ significantly on any variable under consideration except on actual reading achievement. The retarded readers averaged a grade level of 1.43 in reading achievement, whereas the nonretarded readers achieved a grade level average of 3.47. The total mean difference between the actual and expected reading achievement for the two groups was significant at less than the .01 level. Following the selection of the two groups, the ITPA was individually administered to each subject by the investigator.

For the purposes of this investigation, six major hypotheses were examined. The hypotheses were related to the following: (a) total ITPA results, (b) representational and automatic sequential level results, (c) subtest results, and (d) results of psycholinguistic processes. The t test and an analysis of variance design were utilized. The .05 level determined acceptance or rejection of a hypothesis.

Results

The group of retarded readers were found to be significantly inferior to the group of nonretarded readers in performance on (a) the total ITPA, (b) the total automatic sequential level of the ITPA, and (c) the auditory vocal automatic subtest of the ITPA. No significant performance differences were observed at the representational level or on the decoding (understanding), association (manipulation of linguistic symbols internally), and encoding (expressing) responses. Both groups demonstrated a mean performance level on the ITPA which was below the theoretical mean for their mental ages. Retarded readers as a group performed at a level inferior to that of the group of nonretarded readers on all subtests except visual decoding and vocal encoding. A significant difference between groups, however, was observed only on the auditory vocal automatic subtest.

Conclusions and Implications

It was concluded from this investigation that retarded and nonretarded readers among educable mentally handicapped students differed significantly on total ITPA performance. The total ITPA score for the retarded readers was significantly below the total score for nonretarded readers. Because both retarded and nonretarded readers scored below the ITPA theoretical mean for their mental age, the diagnostic significance of the total ITPA score was questioned. It was concluded that the total ITPA score alone would not be an effective measure for predicting or diagnosing reading disability among educable mentally retarded students. It was felt that the total ITPA score would be of little practical usefulness until further standardization indicated the degree of deficiency reflected on the total ITPA performance by unselected educable mentally handicapped students. The important implication of the total score performance difference observed in this investigation was the support it seemingly offered for surface logic. (McCarthy and Kirk, 1963) of the ITPA.

It was concluded from the present investigation that, among educable mentally handicapped students, retarded and nonretarded readers differed significantly on performance on the total automatic sequential level of the ITPA and retarded and nonretarded readers differed significantly on performance on the auditory vocal automatic subtest. Retarded readers performed in a significantly inferior manner to nonretarded readers on the total automatic sequential level of the ITPA and on the auditory vocal automatic subtest. The differences between the performance of retarded and nonretarded readers on both the auditory vocal sequential and visual motor sequential subtests of the automatic sequential level of the ITPA were in favor of nonretarded readers, but not at a statistically significant level.

The most important conclusion of the present investigation was related to the findings at the automatic sequential level. These findings were essentially in agreement with the results reported in the studies by Kass (1962) and by Bateman (1963). Although Kass was studying children of normal intelligence who were dyslexic and Bateman was studying children of normal intelligence who were visually handicapped, both of these sample groups appeared to have performed on the ITPA in a way similar to the way educable mentally handicapped students performed when reading achievement was considered. It was concluded that this similarity appeared to support the assumption that mentally handicapped students do not differ essentially in the way that they learn from the way that normal students learn, but only in the rate at which they learn.

The findings at the automatic sequential level tended to support the diagnostic validity (McCarthy and Kirk, 1963) of the ITPA and supported the investigator's contention that ITPA deficit areas could be identified for retarded readers. A direct implication of these findings related to the practical remedial value of the ITPA. Studies by Hermann (1962) and Kirk, Kass, and Bateman (1962) demonstrated the usefulness of the ITPA for remediation of specific deficits with individual cases. Kass (1962) expressed the opinion that a retarded reader would possibly benefit from specific remedial procedures based on the individual deficits at the automatic sequential level. It was concluded that further research was needed to determine whether the remediation of automatic sequential level deficits would affect the reading achievement level of retarded readers among educable mentally handicapped students.

It was concluded from the present investigation that, among educable mentally handicapped students, retarded and nonretarded readers did not differ on total representational level performance on the ITPA. This conclusion implied that the retarded readers were similar to the nonretarded readers in the present study in relation to the the ability to mediate activities requiring the meaning or significance of linguistic symbols. Retarded readers performed similarly to nonretarded readers on the representational level of the ITPA but significantly inferior to nonretarded readers on the automatic sequential level of the ITPA.

It was concluded, then, that the ability to perform well on reading achievement tests was more closely related to the abilities tapped by the automatic sequential level (such as retaining linguistic symbols and executing automatic habits) than to the abilities tapped by the representational level. Because the automatic sequential level mediated activities of a more automatic or habitual nature, Kass (1962) speculated that dyslexic children, identified in her study as being deficient at the automatic sequential level, probably lacked the perceptual and memory types of abilities required in reading to integrate elements into meaningful wholes. It would appear that perceptual and memory abilities would be more conducive to word calling without comprehending material read; consequently, the nonretarded readers in the present investigation may not have conformed to an all inclusive definition of reading. In the present investigation, reading achievement level by nonretarded readers was significantly higher than the level achieved by the retarded readers based on measurement by standardized reading achievement tests. Further research is needed to explore the relationship between ability in rote memory and chain habit types of tasks on the one hand, and reading ability as measured by current school tests of reading comprehension on the other.

It was concluded from the present investigation that the total decoding, association, and encoding responses on the ITPA were not different for retarded and nonretarded readers among educable mentally handicapped students. Because of this, the two groups of educable mentally handicapped students seemed to be similar in their ability to comprehend the meaning of auditory and visual symbols, to relate visual and auditory symbols on a meaningful basis, and to put meaningful ideas into word or gesture symbols.

From the present investigation it was concluded that, among educable mentally handicapped students, retarded readers did perform at a significantly inferior level when compared to the level of performance by nonretarded readers on (a) the total ITPA, (b) the total automatic sequential level of the ITPA, and (c) the auditory vocal automatic subtest of the ITPA. Remedial procedures and future research at the automatic sequential (integrational) level were suggested.

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COMMUNICATION NEEDS AND PROGRAMS IN THE FIELD OF MENTAL RETARDATION

R.C. Scheerenberger

In 1963, President Kennedy observed that "...the accumulation of knowledge through research is of little value unless communicated in useful form to those who need to use it—to other scientists, practitioners, administrators, and the public." This statement captures the essence of one of the most severe problems confronting professional and nonprofessional persons interested in the prevention, management, treatment, and training of the retarded. The recent emphasis on mental retardation, accompanied by an unparalleled proliferation in the distribution of relevant literature, clearly necessitates the need to develop and perpetuate an international network of professionally staffed, automated, communication systems.

In brief, an efficient, effective, communication system is defined as one which has a minimal intake capacity sufficiently large to include the collection, collation, abstracting and/or coding, and storage of all pertinent data. Its minimal output capacity must be characterized by the retrieval, assemblage, and interpretation of the information in such a manner as to provide an adequate response to a variety of pertinent questions posed by both professional and lay persons. It also is desired that the output include a formal publication, such as a newsletter or preferably a journal.

There are seven prime purposes underlying the establishment of such communication programs:

1. To provide a realistic statistical basis for comprehensive planning and programing.

2. To provide a readily accessible body of recent information essential to increasing our knowledge relative to the etiology, prevention, and treatment of retardation.
3. To enhance effective research by avoiding unnecessary replication.
4. To provide for the more efficient use of professional time.
5. To provide the practitioner with information concerning the development and utilization of new materials and techniques.
6. To provide the practitioner with meaningful reviews and interpretations of research data.
7. To assist both professional and interested nonprofessional persons in keeping alert to the trends in the field.

Today, there is a cogent need to develop information programs capable of encompassing five broad areas of interest:

Demography. In spite of numerous efforts to investigate the distribution and causes of retardation, it is impossible to state with any reasonable degree of confidence the incidence and prevalence of mental retardation. Yet, demographic-epidemiologic data are essential to planning local, state, national, and international programs to combat retardation.

Research. The exponential increase in the number of published research articles has seriously vitiated the researcher's ability to remain alert to the recent developments in his own area of inquiry. To illustrate, it has been estimated that between 1940 and 1963 (a period of 23 years) 1,400 journals published approximately 18,000 articles on mental retardation—an average of only 780 papers per year (Scheerenberger, 1965). In 1965, the documentation service in mental retardation alone reviewed and abstracted approximately 5,000 articles. It is highly probable that, on an international basis, a minimum of 10,000 relevant papers are published annually. Add to this statistic the number of books, pamphlets, theses, and uncirculated reports, and the need for some form of automated communication becomes obvious. The researcher must have access to an information program which will enable him to receive at least the titles and abstracts of research pertinent to his endeavors.

Program Development. Experience in the area of scientific communication and retardation has revealed that very little programatic information is released through formal publications. Instead, when material is prepared concerning such areas as educational curricula or therapeutic activities, it usually is mimeographed and restricted to limited distribution. A concerted effort must be made to recruit and disseminate this type of information which is vital to the development of more effective programs and procedures with the retarded.

Also, within recent years, there has been a growing tendency for commercial publishers to produce instructional materials for the retarded. This, in turn, has created the need to establish regional centers capable of collecting and storing this type of material, testing its adequacy, and distributing information relative to its availability and utilization.

Administration. Today's trend is toward broad, comprehensive programing for the retarded, extending from the local to the national level. It is becoming increasingly necessary for the administrator to have substantial data concerning such vital factors as operational expenses, cost analysis data, and manpower estimates in order to effect beneficial but economic programs for the retarded.

Federal and State Legislation. The tremendous concern for the welfare of the retarded as expressed by the US Government, and other governments as well, has resulted in an intense need for the systematic collection and dissemination of legislative information and interpretations. Persons engaged in state planning will readily recognize that much of their time is needlessly devoted to procuring information concerning federally funded programs.

As presently conceived, neither a single national system nor a series of uncoordinated information programs can serve the existing needs adequately. It will be necessary to establish a centralized, international service as well as national and regional centers for the collection and dissemination of data. Perhaps the international responsibility could be assumed by the the World Health Organization or the recently created International Association for the Scientific Study of Mental Deficiency.

A network approach which would place a heavy emphasis on regional centers is essential to insuring both the maximum collection of data and the rapid distribution of information to the user. Fortunately, there exist today two programs which could serve as models to the development of an international system: The National Clearinghouse for Mental Health Information, National Institute on Mental Health; and the Special Education Instructional Materials Center at the University of Wisconsin.

The National Clearinghouse for Mental Health Information (NCMHI) is a centralized, coordinated source of scientific and professional information on all aspects of mental retardation. In essence, it maintains a centralized resource for the systematic collection, organization, storage and retrieval, and dissemination of a vast amount of materials concerned with mental retardation. It provides its users substantial information both in response to individual inquiries and on a regular distribution basis; and it analyzes, synthesizes, assesses, and evaluates the information so that it can be utilized effectively in the analysis and development of relevant programs. It also is responsible for Mental Retardation Abstracts, a quarterly publication distributed by the US Department of Health, Education, and Welfare, which includes approximately 1,200 abstracts per issue, an annotated bibliography, and a review of the literature article. (Direct requests for subscription to Mental Retardation Abstracts and data should be forwarded to the National Clearinghouse for Mental Health Information, National Institute on Mental Health, Bethesda, Maryland 20014.) Further information concerning the NCMHI is provided in a series of articles by Scheerenberger (1964; 1965; in press).

The Special Education Instructional Materials Center at the University of Wisconsin was established for the purpose of acquiring and making available to special educators educational media appropriate for use with the retarded. Specifically, it was designed to (a) serve as a central depository for curricular instructional materials for handicapped children; (b) receive, distribute, and lend curriculum guides, research reports, programed learning materials, and other teaching tools for the retarded; (c) provide an index system of subject matter areas relating to the education of handicapped children; (d) provide consultation and guidance, institutes, and workshops pertaining to educational materials; and (e) evaluate, adapt, and modify existing instructional materials for handicapped children and create and assess or assist others in creating and assessing instructional materials for handicapped children (McCarthy, 1965; McCarthy, 1966). New educational materials are announced and discussed in a quarterly publication, the Winnower, which is distributed to interested professional persons, including special educators, university students, administrators, and supervisors.

The success of these two information programs lends impetus to the establishment of an international system of communications, a proposal which is not unrealistic. Advanced computer technology readily will accommodate the storage and retrieval of vast amounts of information. The major problem involves manpower. An extensive communication program requires the services of professionally trained persons in the field of retardation to develop the coding systems, abstract the literature, offer translations when necessary, and interpret the existing data in such a manner as to prove meaningful to nonprofessional persons. In addition, a large staff of competent documentalists are also required. Fortunately, many universities are now beginning to offer programs in documentation.

While the total ramifications of an international system of documentation information programs have yet to be explored, the concept of such a service represents a progressive step in meeting the challenge of mental retardation. Interestingly, the ultimate goal for the establishment of such a system is identical to that which motivates the individual scientist and practitioner—to increase the effectiveness of services for the retarded.

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A DIAGNOSTICALLY BASED CURRICULUM FOR PSYCHOSOCIALLY DEPRIVED PRESCHOOL MENTALLY RETARDED CHILDREN: INTERIM REPORT

Howard H. Spicker
Walter L. Hodges
Boyd R. McCandless

The three year experimental preschool project begun in September, 1964 and now in its second year at Indiana University under the direction of Hodges, McCandless, and Spicker has as its major goals:

1. The identification, development, and assessment of techniques and instruments useful for preschool diagnosis leading to productive curriculum practices.
2. The development of a diagnostically based curriculum approach for five year old retarded psychosocially deprived children.
3. The evaluation of the effectiveness of a diagnostically based curriculum in terms of ameliorating present mental retardation and preventing future educational retardation.

Criteria for Selection

Only those five year old children who scored between 50-85 on the 1960 Stanford Binet, L-M Intelligence Scale and who came from families of the lowest socioeconomic class as determined by the Warner-Meeker-Eels Index of Status Characteristics (1949) were selected for the study. Excluded from the study were children with organic pathologies, gross sensory impairments, and serious emotional problems. These latter determinations were made by complete medical and psychiatric examinations.

With the exception of two Negro children, the population meeting the criteria for inclusion in the project consisted of 100 Appalachian, psychosocially deprived, Caucasian children. Although no direct measure of psychological climate in the home is available, we believe that these families are not only economically deprived, by psychosocially deprived as well. A description of the home lives of these children should clarify what is meant by psychosocial deprivation. No adult male is present in 20 percent of the homes. The average household consists of seven persons living in four rooms. The children have from one to 13 siblings, the median being three. However, the majority of the mothers are of child bearing age and are still producing children. Sixty-eight percent of the inschool siblings are in academic difficulty; some are in special classes, while others are failing in the regular grades. On the average, the mothers have completed the eighth grade, while the fathers have completed the seventh. The homes are overcrowded, and the majority can only be described as shacks. Nearly one-half of them have no indoor toilet; coal and wood stoves provide the fuel for heating and cooking. Contrary to the findings reported in many of the studies on urban cultural deprivation, the families in the present investigation tended not to be mobile, as evidenced by the fact that many owned their own property and have resided at the same location for an average of approximately four years. Documented instances of child abuse, incest, alcoholism, criminality, prostitution, and severe mental disturbance are further evidence of the negative psychosocial climates within these homes. It should come as no surprise that such environments produce a great many undesirable educational and psychological consequences.

Children meeting the criteria for selection were placed in one of four groups with approximately 15 children in each. The experimental preschool class (EPS), located in Bloomington, received the diagnostically based curriculum; the kindergarten control class (KC), located 50 miles away in a community similar in size to Bloomington, received a regular kindergarten curriculum; a regular control group (RC), located in Bloomington, remained at home and received only the pretesting and posttesting; a diffusion control group (DC), located in several small towns near Bloomington, also remained at home and received only the pretesting and posttesting. The study calls for three successive kindergarten replications and a followup of all children though completion of at least the third grade.

The Curriculum

In developing the curriculum for this study, an assumption was made that psychosocial deprivation produces many serious negative consequences. Among these are deficiencies in language; impairments in fine and gross motor coordination; and problems in perception, motivation, and socialization. It was further assumed that if the exact nature of these problem areas could be ascertained, specific curriculum practices could be developed to remedy the problems.

One of the most serious and pervasive of the psychoeducational disabilities among these children was in the area of language behavior. Although the majority of our children were able to communicate their needs and were able to carry out simple verbal instructions, many displayed gross inability to cope with elaborative language as described by Bernstein (1961). For example, they were generally able to point to the picture of a boy and call him "boy," but they were often unable to discriminate among several different boys (i.e., red head versus blonde, tall versus short, fat versus skinny, and so on). Their language repertoire lacked the adjectives, adverbs, prepositions, and conjunctions necessary to differentiate specific people or objects with respect to their size, color, shape, texture, or function.

Since we assumed that elaborative language is essential for the development of symbolic thought, verbal mediation, and school success, every school activity was used to elicit and reinforce elaborative language. This was accomplished in many different ways. A story of the week was presented to the children with the aid of pictures, movies, or film strips. During the week the children acted out the story, retold it in their own words, or dramatized it with the aid of hand puppets. Lunch and snack times were used for general conversation between children and adults, as well as for building language concepts around specific foods and table manners. Adaptive art, music, and physical education were used to teach the names of colors, body parts, and so on. In addition, a series of short, structured lessons designed to overcome such specific psycholinguistic problems as visual motor association (inability to relate meaningful symbols), vocal encoding (inability to express ideas in spoken words), or motor encoding (inability to express ideas through gestures) were presented to small groups of children on a daily basis.

One such series utilized a farm animal theme. The lessons began with a field trip to a farm. At the farm the teacher directed the children's attention to the sizes, shapes, colors, sounds, and other specific details which distinguish one animal from another. In addition, the children were permitted to experience such things as riding a horse, feeding the pigs, and watching cows being milked. In the classroom the children were asked the names of pictures and models of the animals encountered on the field trip. Following this labeling review, the children were required to describe one animal at a time in as much detail as possible. They were then asked to compare and contrast two or more of the animals. At another time they were asked to identify the animals by listening to taped animal sounds. At still another time the children took turns acting the role of a particular animal while the remaining children evaluated the performance.

It should be noted that a number of learning principles were utilized throughout the lessons. Some of the principles incorporated in the above examples were moving from the known to the unknown providing review to achieve overlearning, utilizing many different sense modalities to increase concept formation, and moving from the simple to the complex by teaching labeling language before attempting to elicit elaborative language.

An inadequate physical self-concept, perhaps produced by the absence of mirrors and pictures in the home, was another problem exhibited by some of our children. This inadequacy was brought to our attention on several occasions. While playing a "guess who" game, some of the children were unable to guess that they themselves were the individuals being described but were able to guess the names of other children being described. On another occasion we noted that several children were unable to recognize their own photograph but were able to identify correctly the photographs of each of their classmates. In order to improve the physical self-concepts of the children, a series of lessons was developed to teach the children self-identification. The children first traced each other's full length outline on a large sheet of paper. While observing himself in a full length mirror, each child then developed his own outline by drawing or pasting body parts in appropriate places. He then added clothing and colored it to match his own. During these periods each child was given a number of opportunities to describe his physical appearance to the teacher or to his classmates.

There are many more problems associated with psychosocial deprivation requiring compensatory education, such as problems of ocular tracking, motivation, socialization, and fine and gross motor coordination. Each of these problem areas was diagnosed for each child. An attempt was then made to find a compensatory education technique to correct the problem.

First Year Results

With the use of a repeated measures analysis of variance design, the data from each of the pretest and posttest measures were examined. The results (all tests of significance were made at the .05 level) of the various analyses are summarized for each variable as follows:

Stanford Binet Intelligence Scale, Form L-M. There was an interaction effect between groups (EPS, KC, RC, DC) and pretest and posttest dimensions of the analysis using Binet IQ scores. Tests for differences among groups on the pretest suggest that the small differences among groups were not reliable. On the posttest, however, the experimental preschool group's mean score was reliably greater than the two home control groups (RC and DC) but not significantly different from the mean score of the kindergarten control group (KC). All four groups made reliable gains from pretest to posttest.

Table 1

IQ Score Means and Standard Deviations for the Four First Year Groups on the Stanford-Binet Intelligence Scale, Form L-M

Group	*N*	Pretest $\bar{x}$	Pretest *s*	Posttest $\bar{x}$	Posttest *s*	Difference Pre to Post
EPS	13	74.9	9.2	92.8	11.5	17.9
KC	13	73.1	10.3	87.5	10.0	14.4
RC	13	75.3	9.5	80.5	10.5	5.2
DC	13	73.3	10.7	81.3	12.2	8.0

Peabody Picture Vocabulary Tests, Form A (PPVT). A significant pretest to posttest main effect was obtained in the original analysis. Significant pretest to posttest gains were made by the EPS and RC groups. Further analyses indicated that the posttest PPVT gains made by the EPS group were significantly greater than gains made by the other three groups.

Table 2

IQ Score Means and Standard Deviations for the Four First Year Groups on the Peabody Picture Vocabulary Test, Form A

Group	*N*	Pretest $\bar{x}$	Pretest *s*	Posttest $\bar{x}$	Posttest *s*	Difference Pre to Post
EPS	13	66.6	22.6	95.5	6.5	28.9
KC	13	64.9	22.7	80.5	13.9	15.6
RC	13	66.2	13.8	81.2	10.3	15.0
DC	13	74.4	20.4	81.5	13.9	7.1

Figure 1

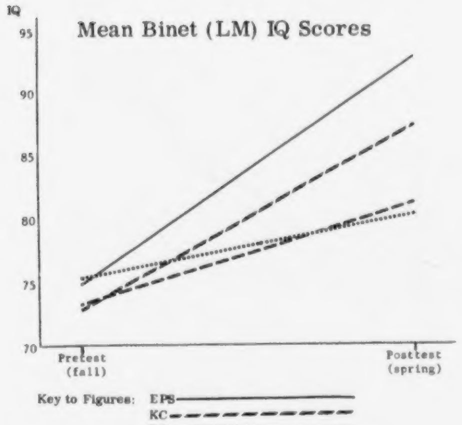
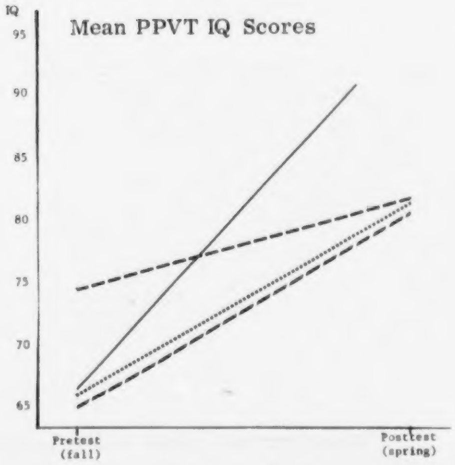


Figure 2



An item analysis of 101 Peabody Picture Vocabulary Test protocols from the sample of children we have studied to date (four groups from the first year, three groups from the second year) was completed. These 101 protocols were obtained during the pretesting and reflect performance before treatment. A rank order correlation of only .46 between the order of difficulty for our five year olds and the placement of these items in the test was obtained. Action words such as yawning, tumble, tying, picking, building, pouring, sewing, catching, blowing, and digging was much more difficult for these children than for the standardization sample. Labels for uncommon objects (i.e., things seldom found in their environment) were also more difficult for our children. These latter difficult words included dial (there are few telephones in their homes), caboose, peacock, kangaroo, and block.

A pretest and posttest item analysis of the PPVT indicated that the greatest percent of increase in correct items for the first year experimental group, when compared with the three control groups, was on the following words: dipping, typing, sewing, picking, twisting, shining, tumble, accident, coach, eagle, capsule, submarine, and group.

The greatest improvement is apparent in just those action words with which the children had difficulty at the beginning of the year. This is especially interesting, because no direct teaching of any of these particular words took place. It may be that our emphasis on elicitation of elaborative language using different word forms produced this result.

Illinois Test of Psycholinguistic Abilities. A substudy was conducted in the area of language development by Stearns (1966). The effects of a general, nonspecific, kindergarten program on language development as measured by the Illinois Test of Psycholinguistic Abilities was our first interest. Specific diagnostic lessons were introduced at midyear in hopes of demonstrating an acceleration of language score gains in addition to the general gains made in semester one. Pretests, midyear tests, and posttests on three of the groups were administered. The predicted acceleration was not demonstrated, as seen in Figure 3. No diagnostic language treatment was administered during semester one, but 67 specific lessons were added for the experimental group during semester two.

During the diagnostic language treatment period (semester two), the mean total language age scores of all three groups increased. The EPS group showed an increase of 9.6 months, the KC group gained 6.3 months, and the RC group gained 5.4 months. Covariance adjustments for differences on the midyear test were made on the posttest means. The resulting F ratios indicated that the posttest mean scores were not reliably different from one another.

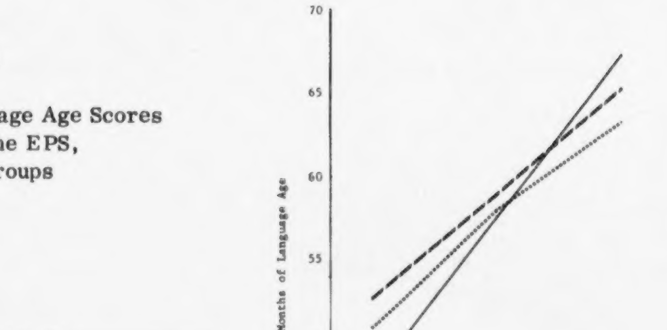


Figure 3

Means for Total Language Age Scores
on the ITPA for the EPS,
KC, and RC Groups

During the four month period preceding the use of the diagnostic language lessons, the EPS group obtained a mean language age gain of 9.8 months, the KC group gained 6.2 months, and the RC group gained 6.8 months.

These data indicate that all three groups made gains in mean total language age over the year and that each group maintained its own rate of acceleration. In addition, after adjustments by covariance for initial test scores, reliable differences from pretest to posttest were demonstrated in favor of the EPS group over the KC and RC groups. Mean gains over the academic year were 19, 13, and 12 months respectively.

Table 3

ITPA Total Score Mean Language Age in Months for Three of the
First Year Groups at Each Testing

Group	Test 1	Test 2	Test 3
EPS	47.83	57.67	67.25
KC	52.67	58.89	65.22
RC	51.00	57.80	63.20

During the first year of the study, the Illinois Test of Psycholinguistic Abilities (ITPA) was used as a pre and post measure of language gains and as a diagnostic instrument for assessing the children's strengths and weaknesses in language. Upon completion of the analysis of the first year language gains, it became apparent that the ITPA was not adequate for measuring elaborative language. It was therefore necessary to revise our pre and post measures of language. It was decided that we needed to asses four levels of language: (a) experiential vocabulary, (b) labeling language, (c) language comprehension, and (d) elaborative language. Our experience with the Peabody Picture Vocabulary Test (PPVT) indicated that this instrument was invaluable for assessing the basic experiential language level of our children. We therefore continued to use the PPVT for that purpose.

In order to assess the ability of a child to properly label objects, the PPVT was administered in reverse, i.e., the picture was shown as the stimulus in order to elicit a labeling response. For example, the child was shown a picture of a chair and asked to tell the examiner the name for the picture.

Language comprehension was assessed by the vocabulary section of the Binet L-M. However, the responses were scored on a qualitative scale to determine the degree of concreteness or abstractness used in defining the word. For example, "orange" might be defined as "fruit," "a color," "juicy," "to eat," etc.

Elaborative language was measured by taping the oral responses of the subject to two colorful stimulus pictures. One depicts Little Red Riding Hood waving goodby to her mother. This picture was selected to determine whether story familiarity will enhance elaborative language usage. The other picture was of an urban scene depicting children walking to school. Although, as in the first picture, the scene is familiar to most of the children, they are asked to provide their own story. Obviously, the latter stimulus picture requires a higher level response, because the children have not been exposed to a story that goes with the picture. These language samples will be analyzed for sentence length, sustence complexity, and parts of speech.

The children with whom we are working will be followed into and through the first three grades in school and further if possible. Academic achievement, intelligence test, socialization, and language data on each of our subjects will be collected at the end of each year. The degree to which our experimental children are able to compete in school will determine the ultimate success of our diagnostic curriculum.

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A COMPARISON OF NORMAL AND SUBNORMAL SUBJECTS USING VISUAL STRUCTURED CATEGORIZATION TASKS

William R. Van Osdol

In recent years, study in the field of mental retardation has established a foothold. The late President Kennedy's sincere attention to the study of subnormality has indicated to the American people that subnormality is not confined to the poor and the less intelligent families. He also positively indicated that subnormality is not a situation of which one should feel ashamed, and it is not a situation that should be forgotten and isolated in institutions and schools for mental retardation. Consequently, the need has been shown that traditional assumptions of conceptual issues should not be defended as all inclusive and should not be accepted as totally valid principles until so indicated by experimental data. Therefore, the need for experimental studies does exist, because only through experimentation can the pseudoassumptions be invalidated.

It was the purpose of this study to determine if there is a statistically significant difference in subnormal and normal children's ability to employ conceptual categories. Specifically, the experiment tried to determine whether normal subjects can correctly employ more of a series of test categories than subnormal subjects after the examiner has identified the categories by giving visual (picture associative) cues, whether or not response delay indicates a statistically significant different reaction time to each of the 25 categorization tasks and whether or not there is a statistically significant different total time spent on correct responses of each of the 25 categorization tasks.

The rationale by which this study was initiated is as follows:

1. The ability to inhibit plays an important part in the social and educational adjustment of an individual. The effective handling of impulses and the inhibition of impulsive behavior may be fundamental in order to discriminate similar experiental data to determine their meaning.
2. Lack of response delay may direct the individual to respond quickly and with no regard for a meaningful process of categorization. Consequently, the individual cannot accumulate meaningful interpretative categories with which he can relate new experiences.
3. To function adequately in his society, an individual must be able to respond with the same restraint and with equal accuracy as demonstrated by the norms his environment. Any deviation from the experiential meaning employed by his milieu will place the individual in a nonfunctioning category.
4. If a subnormal person is unable to adequately construct categories which are predominant for his milieu, he would not have the proper framework which is needed for successful functioning.
5. There are many avenues of employment of categories which may cause the individual's inability to construct categories as intellective frameworks. The individual may possess adequate use of visual or audio stimuli in his use of categories, in which case his response delay may be significantly longer than that required by normal individuals, which should indicate the apparent difficulty that subnormals encounter in using categories.
6. Subnormal individuals may employ significantly fewer categories regardless of the external stimuli, which should indicate their inabilities to function without a broad intellective framework.

The experiment carried out to test the following null hypotheses:

1. The number of correct responses attained by the normal group will not be significantly different from the number of correct responses attained by the subnormal group when the responses of the groups to each of 25 visual structured categorization tasks are compared.
2. The correlation between correct responses and mean responses delay time attained by the normal group will not be significantly different from the correlation attained by the subnormals when the correlations of the 25 visual structured categorization tasks are compared.
3. The correlation between correct responses and total mean task time attained by the subnormal group when the correlations of the 25 visual structured categorization tasks are compared.

The instrument to be used in this study was, in part, an instrument constructed for use in a previous study by Dr. Wyatt Stephens, Child Study Center, Fort Worth, Texas. His instrument was used with modifications, as constructed by the examiner for this study. Specifically, the modification of the original instrument is an additional set of 27 cards, 6 inches by 6 inches, which have a single picture on the center of each card. These cards were used in cooperation with the original instrument for the visual structured categorization task. The original instrument consisted of a series of 27 cards, each 8 inches by 18 inches, on which are located 7 different pictures. There is one set of test cards for each of 27 categories:

Sample: Size
Sample: Form

1. Color
2. Number
3. Detail
4. Orientation in space
5. Heat
6. Clothing
7. Fruits versus vegetables
8. Flying versus nonflying objects
9. Containers versus noncontainers
10. Tools versus nontools
11. Cutting versus noncutting equipment
12. Sex differences in children
13. Age differences in men
14. Sex differences in adults
15. Happy versus sad children
16. Ugly versus pretty women
17. Land vehicles versus airborne or amphibious vehicles
18. Land animals versus airborne or amphibious animals
19. Young boys versus other living things
20. Clothing made from animal products versus other wearing apparel
21. Footwear versus other clothing
22. Furniture versus other household objects
23. Cooking equipment versus other household objects
24. Male versus female wearing apparel
25. Even numbers of dots versus odd numbers of dots

On each test card there are seven randomly ordered figures or pictures, four of which represent the category, and three of which are incorrect responses in terms of the category which is being tested. In the present study, the subject was required to decide upon the appropriate category for each card by picture association. His response delay to each card was timed, and finally his total response time was measured. All children were from the same school system, and each of the normal subjects was matched for chronological age to a subnormal subject.

In summary, the 60 boys tested for the present study had the following characteristics:

1. All subjects were attending one of the two schools chosen for this study in the Oklahoma City school system.

2. All subjects represented the lower middle to middle lower socioeconomic level families.

3. No subjects were used who evidenced gross physical handicap, hearing difficulties, visual defects, or severe emotional disturbance.

4. Each normal and subnormal subject was equated within a six months' chronological range from age 9 years to 11 years and 2 months.

5. Thirty boys, the subnormal group, possessed IQ scores ranging from 54 to 88, with a mean IQ of 77.96 and a standard deviation of 8.08.

6. Thirty boys, the normal group, possessed IQ scores ranging from 92 to 115, with a mean IQ of 102.2 and a standard deviation of 7.87.

Little plastic cars were used to show the subjects how things can be alike. The cars were removed and the subject was given the four white plastic chips, and the examiner said, "Now, I'll show you what we are going to do. I have some pictures on these cards of lots of things. On this smaller card is one picture. I want you to place the white chips on each picture on this card (pointing to the small card). Remember, now, things can be alike in different ways."

The examiner presented each sample card and helped the subject to proceed correctly. Then the examiner asked, "Do you understand what we are doing?" The examiner then gave further instructions if the subject so indicated a need.

The examiner then presented the first test card and said, "Let's try this one. Remember, things can be alike for different reasons. Now, which pictures on this card are most like the pictures on this card—remember, most alike?" The subject's response delay time, total task time, and correct or incorrect response were recorded. The same instruction was presented for each of the tasks until all 25 tasks were completed.

The data indicated that the number of normal subjects attaining correct responses was not significantly greater than the number of subnormal subjects attaining correct responses. In fact, the normal subjects did not attain a significant difference on any of the items at or beyond the 0.05 level of confidence. The normal subjects did indicate a greater percentage difference of the 25 categories, but none of these were significant at the 0.05 level of confidence.

Table 1

Number and Percentage of Subjects Attaining Correct Responses on Visual Structured Tasks

	Normals (N=30)		Subnormals (N=30)			
Category	Number	Percentage	Number	Percentage	Percentage Difference (N SN)	Z Value
1.	27	90.0	23	76.6	13.4	1.39
2.	29	96.7	30	100.0	-3.3	-0.99
3.	25	83.4	29	96.7	-13.3	-0.54
4.	29	96.7	29	96.7	0.0	0.00
5.	30	100.0	27	90.0	10.0	1.78
6.	9	30.0	12	40.0	-10.0	-0.81
7.	22	73.3	27	90.0	-16.7	-1.67
8.	14	46.7	7	23.3	23.4	1.90
9.	18	60.0	13	43.3	16.7	1.29
10.	25	83.4	21	70.0	13.4	1.23
11.	10	33.3	14	46.7	-13.4	-1.06
12.	25	83.4	22	73.3	10.1	0.95
13.	17	56.7	12	40.0	16.7	1.30
14.	27	90.0	26	86.7	3.3	0.40
15.	20	66.6	17	56.6	10.0	0.80
16.	12	40.0	11	36.7	3.3	0.26
17.	20	66.6	21	70.0	-3.4	-0.28
18.	8	26.6	7	23.3	3.3	0.30
19.	19	63.3	15	50.0	13.3	1.04
20.	2	6.7	3	10.0	-3.3	---
21.	27	90.0	30	100.0	-10.0	-1.78
22.	23	76.6	19	63.3	13.3	1.13
23.	12	40.0	17	56.7	-16.7	-1.30
24.	7	23.3	13	43.3	-20.0	-1.64
25.	0	0.0	0	0.0	0.0	0.00

Note: Positive percentage differences in favor of normals; minus differences in favor of subnormals.

*Significant at or beyond the 0.05 level.

It was interesting to note that on two different categories 100 percent of the subnormal subjects attained correct responses. The normal subjects had 100 percent correct responses on only one item. The largest percentage difference on one item was in favor of the normal group. This was 23.4 percentage difference on item 8, flying objects. However, the subnormal group had nearly as large a percentage difference (-20.0 percent) on item 24, male wearing apparel.

To summarize the data, when the subjects were required to find items which represented examples of categories most like the items on the picture associative cards, there were no significant differences on any of the 25 categories tested. Since there were no significant differences, the factor of chance operation had no effect upon these data.

In order to gain information concerning the relative speed with which a subject responds to a task and its relationship to one's correct responses, correlations were made between the correct responses and the mean response delay time for both groups, normal and subnormal. The data revealed that normal subjects have a higher correlation between their correct responses and their mean response delay time than the subnormal subjects. In fact, the subnormal subjects indicated that, as the correct responses increased, the mean response delay time decreased; consequently, a negative correlation was indicated at -.114. The normal subjects had a positive correlation at the .375 level.

Table 2

	Normals		Subnormals	
N=30	Correct Responses	Mean Time (Seconds) Response Delay	Correct Responses	Mean Time (Seconds) Response Delay
	x	y	x	y
1.	21	3.5	09	4.5
2.	13	1.7	15	4.0
3.	15	2.0	13	1.1
4.	16	3.3	17	1.7
5.	10	1.4	14	2.8
6.	12	3.3	15	2.5
7.	16	2.5	15	3.0
8.	17	1.9	20	3.4
9.	14	2.0	17	5.1
10.	15	3.0	11	4.1
11.	14	2.1	13	4.5
12.	15	2.0	18	1.3
13.	17	3.6	12	3.1
14.	19	3.7	17	3.0
15.	15	2.1	12	2.6
16.	15	2.4	13	3.0
17.	18	2.8	16	1.5
18.	18	2.9	16	1.8
19.	17	1.5	15	3.5
20.	14	1.8	16	2.2
21.	15	1.7	17	2.7
22.	13	1.3	13	0.8
23.	18	3.1	11	2.5
24.	14	2.2	12	3.8
25.	13	1.8	18	3.3
26.	16	4.1	19	1.6
27.	19	2.2	13	2.5
28.	17	5.3	08	2.3
29.	13	3.3	16	3.7
30.	19	2.8	20	1.4
	468	77.3	441	83.3

$Y = 77.3$
$Y^2 = 223.45$
$XY = 1235$

$X = 468$
$X^2 = 7474$
$r = .375$

$Y = 83.3$
$Y^2 = 265.97$
$XY = 1213.60$

$X = 441$
$X^2 = 6749$
$r = -.114$

In order to gain information concerning the relative speed with which a subject needs to complete a task and its relationship to his correct responses, correlations were run between the correct responses and the total mean task times for both the normal and the subnormal groups. The data revealed that normal subjects have a higher correlation between their correct responses and their total mean task times than the subnormal subjects. Neither correlation was far removed from 0, but the normal group indicated a somewhat higher correlation at .5 than did the subnormal group at .07.

Table 3

Correlation of the Correct Responses and the Mean Total Task Times on the Visual Structured Tasks

	Normals		Subnormals	
N=30	Correct Responses	Mean Total Task Time (Seconds)	Correct Responses	Mean Total Task Time (Seconds)
	X	Y	X	Y
1.	21	10.8	09	15.6
2.	13	4.7	15	10.6
3.	15	8.1	13	5.3
4.	16	9.4	17	12.0
5.	10	5.0	14	6.3
6.	12	9.9	15	10.2
7.	16	8.1	15	8.6
8.	17	9.7	20	12.1
9.	14	7.6	17	9.7
10.	15	13.0	11	14.3
11.	14	9.1	13	13.5
12.	15	7.0	18	18.4
13.	17	13.0	12	5.8
14.	19	14.7	17	9.8
15.	15	8.4	12	9.3
16.	15	7.8	13	19.5
17.	18	12.3	16	8.5
18.	18	8.7	16	6.0
19.	17	6.5	15	13.1
20.	14	8.7	16	9.8
21.	15	6.4	17	9.8
22.	13	4.9	13	3.4
23.	18	8.3	11	9.7
24.	14	8.9	12	17.7
25.	13	6.8	18	16.5
26.	16	12.5	19	5.3
27.	19	10.2	13	11.7
28.	17	17.5	08	8.4
29.	13	13.3	16	11.1
30.	19	11.0	20	6.8
	468	283.1	441	318.8

Y = 283.1
Y^2 = 2940.57
XY = 4519.4
X = 468
X^2 = 7474
r = .15

Y = 318.8
Y^2 = 3875.84
XY = 4660.5
X = 441
X^2 = 6749
r = .072

The normal group attained a mean of 15.6 correct responses with a mean of 9.4 seconds per response. The subnormal group attained a mean of 14.5 correct responses with a mean of 10.6 seconds per response. This information indicates that the subnormal subjects require more time to correctly respond on a comparable level with normal subjects.

Comparisons were possible between the two groups in all of the 25 categories tested, and significant differences in favor of the normal subjects were recorded on only two categories at the 0.05 level. The probability of this number occurring because of chance alone is .3576. Therefore, the probability that chance may be operating indicated that there was no significant difference between the groups, and the first null hypothesis was accepted.

The comparison of the abilities of the two groups to select appropriate categories on visually instructed tasks indicated that subnormal subjects were not significantly less able than normal subjects to perform adequately, unless total time allowed for the task became a factor. Apparently, the normal student has better independently operating conceptualization abilities which hence are not dependent upon additional stimuli. The subnormal subject has a narrow range for independent conceptualization, but his organization is enhanced greatly by having the aid of visual stimuli.

The second hypothesis that there is no significant difference between the correlations of correct responses and mean response delay times for the subnormal group and the normal group on visually structured tasks was sustained. Comparison was possible between the two groups after the correlation values were changed to z values and tested at the 0.05 level. The z value was 1.90, but to be significant at the 0.05 level it would have to reach 1.96.

Table 4

Correlations of Correct Responses and Response Delay Mean Times on the Visual Structured Tasks Transformed to Fisher's Z

Normals		Subnormals
r = .375		r = -.114
z = .400	CR or Z = 1.90	z = -.110

*Significant at the 0.05 level.

The third hypothesis is that there is no significant difference between the correlations of correct responses and total mean task times for the subnormal group and the normal group on visual structured tasks was sustained. Comparison was possible between the two groups after the correlation values were converted to z scores and tested at the 0.05 level of confidence. The critical ratio was computed at .812, which does not reach the .05 level of confidence at 1.96.

Table 5

Correlations of Correct Responses and Total Mean Task Times on the Visual Structured Tasks Transformed to Fisher's Z

r = .15		r = -.072
z = .151	CR or Z = .812	z = -.07

*Significant at the 0.05 level.

Comparison of the correlations of the two groups indicated that there was no significant difference between their number of correct responses and total mean task times. A high plus correlation should indicate that, as the number of correct responses gets higher, the time needed to complete the task would rise. Apparently, the range of scores was too shallow, or the tasks which required little total time were too easy. The only difference noted was that, to get an equal number of correct responses, the subnormal group required more time.

One conclusion drawn from the present study is that when normal subjects and subnormal subjects are faced with an equated task, it is essential that the subnormal subjects have more total time to complete the task. Too many times the simplicity of a task in the classrooms of our schools is determined by a "mature, well educated adult"; consequently, the subnormal and even normal subjects are faced with a task that is difficult for them and are given insufficient time to perform adequately. Therefore, the subnormal child falls into a poorly functioning pattern and soon learns that he cannot learn.

Another conclusion drawn from this study is that the effect of visual stimuli must be of far more value to the subnormal child than to the normal child. Visual stimuli appear to open the door for the subnormal child, so he can reach back into his experiential framework and broaden his range of conceptual categories. This apparently is not of equal value to the normal child, because he already has a wider range into which he can fit his experiences.

Another conclusion drawn from the present study is that inhibition of response delay does not have a relative effect upon one's ability to perform correctly on a task. This evidence appears to be in agreement with previous studies concerning the differences in response delay. Previous studies have also shown that there is no particular difference in response delay time of healthy adults, children, schizophrenics, or feebleminded persons. This study has shown that this holds true, also, in response to conceptual categorization tasks.

The extreme variations in response delay times appear to indicate that those subjects who respond quickly without benefit of concept formation and those subjects who respond slowly without integrating experiential background should have greater chance for error in forming concepts. Information, relative to correct answers and response delay time leads one to assume that, as the correct responses increase, the response delay time has relatively little effect upon the choice of correct responses for either normal or subnormal subjects. Therefore, the conclusion must be drawn that experiential background and external stimuli have more effect upon an individual's conceptual categorization ability than does inhibition of response delay time.

In summary, the data in the present study appear to indicate that fast or slow response delay time is not the causation of conceptualization errors; but instead, correct conceptualization depends upon the subject's experiential framework to which he can associate and integrate new stimuli. Therefore, it is concluded that categories are probably not developed by repetition, but by association of related objects or ideas over a period of time. Repetition is of value to help one retain that which he has previously learned. Consequently, the repetitive drill appears to be relatively useless for concept formation.

ASSESSMENT: BEYOND PSYCHOMETRY

Bluma B. Weiner

Since there seems to be no particular advantage in throwing the baby out with his bath water, this observation is not intended to be "anti test." Rather, it is an exploration of a possible and teachable way for improving our use of measurements. The word teachable is emphasized, because a procedural style which is so dependent upon the unique qualities of the originator that it cannot be duplicated by anyone else is appropriate for the creative artist but troublesome to the practitioner of the methods of science. In science, procedures must be replicable in order that findings may be verified, and the test of reality is its observability and confirmability by others. Our objective at this time is not the invention of a new kind of test (although that is an appealing idea), but a better way of looking at the products of the instruments we already have at our disposal.

Except for limited research purposes, very few retarded children have been the subjects of intensive child study and evaluation techniques. The bulk of clinical pactice with these children has been confined to peripheral and comparatively brief "Binet and Simonizing" or "WISCing" for the purpose of administrative disposition. The results of such practices over the past 20 or 30 years have not enhanced our professional reputation as educators or clinicians to any noticeable degree. In fact, we are now experiencing a kind of backlash of public reaction to mechanical applications and misapplications of our measuring devices.

However, concern about the evaluation of handicapped children is really not of recent origin. For many years conscientious professional workers, especially those who have been involved in the rearing and educating of mentally retarded children, have been disenchanted with the prevailing modes of arriving at decisions about them. On too many occasions the traditional manner and means of judging capacity and achievement have culminated in deadend, diagnostic labelling. The apparent futility of efforts to translate psychometric data into applicable educational prescriptions has led to much discouragement and sometimes to resentment and outright rejection of the whole idea of testing. This situation is reminiscent of a remark made by the late Marie Rasey of Wayne State University, who stated that a lot of damn-fool nonsense has been committed in the name of freedom, but that doesn't invalidate the concept of freedom. It may also be said that a lot of damn-fool nonsense has been committed in the name of measurement, but that doesn't invalidate the concept of measurement.

What ought to be considered is the probability that too much has been demanded from the usual clinical and educational testing procedures, and too little thought has been given to the development of systematic, observational procedures for use directly in the classrooms or other life situations. Such methods of observation have been widely used in child study oriented nursery schools. We shall be concerned here with the content of a tentative scheme that appears promising for application in ascertaining the status and progress of mentally retarded children.

Meaning and Purpose of Assessment

The term assessment is used here in its original comprehensive sense as defined in Webster's third unabridged edition: to assess means to "analyze critically and judge definitively the nature, significance, status, or merit...." Assessment, therefore, is a serious task and an awesome responsibility. We shall not in one session, nor in one hundred sessions, arrive at a final and forever formula to achieve its purposes, but we can create a design to direct our attention and our efforts.

The traditional clinical approach to the evaluation of mentally retarded children has been intended to serve at least three objectives: (a) the determination of intellectual status, usually expressed in terms of classification or degree of developmental retardation; (b) the projection of a theoretical pace of the future course of intellectual development; and (c) an estimate of the child's educability, derived from the two preceding conclusions. The kinds of observations we are going to suggest do not result in scores that can be manipulated mathematically—at least not yet. But they can yield information that is of substantive assistance in (a) describing status more fully, (b) providing bases for selecting and directing the course of development, and (c) indicating the dimensions of the child's educability.

Some Facts and Artifacts

Inherent in any system of observation are factors which merit greater consideration than they usually receive. The first set of such elements has relevance for the nature of the child behavior that is sampled or observed. The other set is pertinent to the behavior of the adults who make the observations.

With respect to the behavior of the child who is being observed, the adequacy of the evidence which is obtained is relative to conditions of time, circumstance, and content. That is, the duration and continuity of his performance has to be taken into account, as well as the setting in which specific kinds of behavior occur or fail to occur and the array of functions that are to be noted. Observation must encompass a large enough segment of representative behavior in significant tasks and settings in order to lead to practical judgments and decisions.

The behavior of the adult observer is inescapably influential in the quality of observations which are made. Besides the technical aspects of making formal or informal observations, there are considerations which are less widely acknowledged. These factors include the observer's beliefs and biases about child development; the scope of his interest in a particular child and the specific areas of his professional curiosity; and the subtle, often subliminal, messages of expectancy which are conveyed to the child, either verbally or nonverbally. The contribution which each of these facts makes to the child's performance and the observer's perception of that performance may be positive or negative, and their intricate interrelationships have not yet been sufficiently explored. However, the conditions of observation of child behavior noted here are accessible to modification, and observation by multiple observers may provide a partial answer to the problem of adult behavior. In the context of the present discussion of the nature of assessment, it is sufficient, momentarily, to recognize the relevance of such factors. The development of strategies to cope with them is another task.

The Concept of Educability

Although the concept of educability is germane to our assessment efforts, the term has never actually been well defined. The nearest approximation to a definition that is not circular (i.e., "capable of being educated") is the attempt to differentiate between educable and trainable mentally retarded persons. This distinction has not been fully acceptable for several reasons, but certainly one of the legitimate objections is the arbitrary nature of a dichotomy that is more of a statistical convenience than a describable reality. If we are to invest this word educable with a rational meaning, a global viewpoint of educability will not be sufficient. We need a construct that will help us to accommodate the continuum of important characteristics which obtain throughout the sequence of development and achievement of all children, which extend into adulthood, and which are translatable into behavioral functions that are accessible to environmental influence. A framework for such a model is presented here. It appears to satisfy the conditions that have been specified and to provide for the kind of purposeful assessment that was advocated earlier: a more complete description of status, a foundation for selecting and directing the course of development, and a multidimensional description of areas of realized and relizable functioning.

Assessment of Educability

The characteristics of behavior which we have elected for observation are level, rate, range, efficiency, and autonomy. We regard them as the dimensions of educability.

By level we mean the total amount of development or achievement. The notion of level is traditionally considered in terms of age or grade equivalences, but it can also be described in terms of degree of difficulty or complexity. The latter kind of description is of more functional value, because it makes available substantive, rather than simple, score information for planning further experiences and instruction.

Rate refers to the time required to attain a particular level or to achieve a specific amount of gain. It must be appreciated that rate may change from task to task and from circumstance to circumstance. We need to give closer attention to the activity rhythms of individual children and to their apparent peaks and plateaus in learning activity. We need also to understand that a child's rate of change may depend in some part upon the behavior of the adult—whether it be teacher or examiner. To assume that rate is a fixed and exclusive function of innate or internal factors is to minimize the role of the educator as a stage manager of learning.

Range is used here in its territorial, rather than in its statistical, sense. We must be concerned with the array of learning opportunities which are provided, as well as with the quality of the child's response to them. The important question here is "educable in what functions?" Conventional school curricula and traditional procedures and terminology for reporting change in educational status have been expressed with respect to formal bodies of subject matter, such as language arts, social studies, science, and mathematics. We have been so preoccupied with the preservation of knowledge that we have somehow forgotten the purpose of knowledge—the contribution it should make to human advancement.

The subject matter which has just been enumerated is valid content for retarded children, but it needs to be translated into functional components in order that the required behaviors may be identified, analyzed, and assisted. Thus, for our purposes of assessment, we think of language arts in terms of communication and of the primary processes which underpin the foundations of listening, speaking, reading, writing, and spelling. We look at accuracy and stability of auditory,visual, tactile, and kinesthetic functions; at reception, perception, differentiation, association, integration, and retention; at the accuracy and dependability of motor, visual motor, and vocal coordinations. We are concerned with the behavioral tools which enable a child to become a "school child"—with his knowing how and knowing when to look, to listen, to wait, to try, to share, to help, and to work.

The informational agenda of traditional social and natural science content are data to be acquired, understood, and incorporated as comfortably as possible into the expanding body of one's knowledge about himself and other persons and things. Our children need information about visible and tangible things and about matters which are not visible or tangible, about thoughts and feelings, and about relationships between themselves and others. They acquire such information and the skills for handling it gradually, usually laboriously, and sometimes painfully. Their stock of data may be incomplete, inaccurate, or poorly integrated. These are the facets of assessment with which we need to be most concerned, rather than with the census of factual statements that a child may be able to produce.

Similarly, our concern with the areas of spatial and quantitative perceptions, understandings, and skills should be expressed in terms of specific functional elements which are the building blocks for more complex attainments; discrimination of units, groups, mass, direction, and distance (and their comparative relationships) are examples of such foundations. We need to be concerned with mastery of the mathematics of daily living, the rational counting and computing, locating in space (in, on, under, over, beside, before, behind, etc.), and the reckoning (not simply the telling) of time and the use of money.

These demands and others of similar character start early in childhood and continue throughout adulthood. Any inventory of facts acquired should be accompanied by inquiry into their utilization.

Other phases of school curriculum, particularly art, music, and physical education, are potentially significant in the development of mentally retarded children. Behavior in these areas should be just as carefully observed and analyzed. Their content is directly concerned with functions that the child can take with him throughout his life and that are rich in opportunity for independent choice and innovation.

In our observations of efficiency, we need to look for evidence of behavioral adequacy in terms of accuracy and correctness and in terms of availability as expressed in economy and speed of performance. Determination of the degree of efficiency in a broad range of socially and educationally meaningful tasks is a better basis for the assessment of educability than reliance on an arbitrary IQ score.

By autonomy we mean evidence of independent, self-actualizing activity. We need to observe not only how children approach and execute tasks which are selected for them, but whether and how they select, initiate, and execute tasks which they have chosen for themselves, and whether they experience satisfaction in their choices. We need to note whether our children manifest perceptions of themselves as learners and doers or as nonlearners and nondoers. Even very young children are capable of some degree of autonomous behavior. If a child seems never to reach out spontaneously to things and persons or to make choices and decisions by himself, or if such behavior seems unduly restricted, there is need for greater watchfulness by the adult. Such impressions need verification, so that appropriate action can be taken.

Conclusion

It is unlikely that the preparation of a worthwhile descriptive report on the intellectual and educational status of a mentally retarded child, or of any handicapped child, will ever be a simple or easy assignment. Criteria of age and ordinary grade equivalents are not fully satisfactory, nor do the conditions of observation and instruction always lend themselves to the detection of the month by month increments when they have occurred. If these problems are complicated by sampling or instructional methods that severely curtail the range of activities in which the children engage, the vision of the child as he really is or might become emerges as a blurred and distorted image. Unless we are sharply cognizant of these various considerations, we underestimate or miss entirely the magnitude of changes which have taken place or the avenues of promise for future development.

But complacent confession of the limitations or errors in our ways does not do away with the fact that differences in development (including serious pathological deviations) do exist and that they require expert analysis and evaluation. Responsible child study is time consuming, demanding work. It is not a calling for the professional—or nonprofessional—dabbler, or for anyone who wants to succeed without really trying. It is not for the disillusioned or for the discouraged who have already been defeated by the disillusionment of others. The useful extension of our knowledge of children beyond the pedestrian boundaries of psychometric and educational test scores can be accomplished only by meticulous attention to the "small diagnostic truths" of which Steinbeck spoke in his Travels with Charlie and by the conviction that retarded children are worth this kind of effort.

CURRICULUM CONSIDERATIONS IN PROGRAMS FOR THE TRAINABLE RETARDED: APPLICATION OF THEORETICAL MODELS

Gloria F. Wolinsky

On several occasions I have indicated that the developmental approach to human behavior, particularly as enunciated by Jean Piaget, offers considerable insights and direction for educational planning for the mentally retarded (Wolinsky 1962; Wolinsky, 1965). I also have had the opportunity to present some specific points of view about the role and function of the teacher of the trainable retarded (Wolinsky, 1959). The remarks today are based on the dual premises of (a) the utility of Piaget's concept as a basis for curriculum planning and (b) in order to plan effectively and instruct with some degree of meaning, the teacher of the trainable retarded has to be involved with a diagnostic procedure.

In looking at Piaget's model of development, we can proceed in either of two directions. The first would be in the application in terms of a sequence of ordered experience that is germane to human functioning, and the other would be the specific question of education in those tasks within the sequence, whether they be sensory motor or of a more sophisticated level of cognitive learning. In the rather limited time that we have for presentation, it is not possible to deal with these two areas in any great detail. However, there is time to make some remarks in terms of these two dimensions, so that your own future reading and thinking in this area can be specifically directed to the problems of curriculum development and the trainable mentally retarded.

Piaget's basic word for an individual's effective responses to the environment is "equilibrium" or "equilibration." This concept implies involvement of the organism with the environment. It is more than maturation; it implies a learning that serves its own purposes in terms of the task at hand and serves as a foundation for additional later learning. Piaget (1964) himself questions the value and purpose of training for specific tasks in terms of learning that will be with the child for any great period of time. Logically, the training becomes a deinvolvement with the total environment, and the question of carry over to a more complex situation becomes pertinent. This point is a crucial one as I will note later.

In using Piaget's model of development, I do not mean to imply that I am unaware of the tremendous contribution that Gesell, Baldwin, Werner, and Kohler have made to the concept of development, both in the physical and intellectual areas (Zigler, 1966). Most assuredly, these contributions are utilized in providing a basic understanding of a child. Close scrutinizing of these various approaches will reveal considerable overlap and similar direction of thought. I might add here that it serves us no purpose to utilize only one approach or one way of conceptualization in dealing with the problems of the mentally retarded, for the complex problems that we face here demand an experimental and eclectic approach.

My own belief for Piaget's particular formulation as having a tremendous potential for contribution to the area under discussion lies within the more broadly based concept of an ongoing developmental process. And perhaps, too, it is because the questions he asks in all his little experiments and the questions he presupposes to answer in the totality of his writing appear to me closer to the problems that we seek to answer as we work with the child in a group setting which we call school, classroom, preschool class, or workshop. In spite of our knowledge that these youngsters are limited, they are being educated in an environment that is basically involved with knowing—a cognitive situation. In spite of verbal expressions of the somewhat limited goals we have set for these children in the cognitive area, and because of the entire value system that our teacher and child operate within, the child is being exposed to cognitive acts that are more than premature in view of the fact that the youngster has not mastered the sensory motor skills basic to more complicated tasks. It is within the sensory motor period and the preoperational period that guides for understanding the trainable in terms of curriculum development are to be found. Since trainable children often are multiply handicapped children, a knowledge of the multidimensional aspects of development is crucial.

Piaget has been criticized in terms of an apparent lack of concern with individual differences. Those of us who think that his approach has meaning believe that his diagnostic approach is one that guides us toward a more realistic approach to individual differences. For the individual differences with which we are concerned are not the academics of the literature, but rather the individual difference which the child in our classroom presents. What intrigues me in Piaget's work—and this admittedly is an aspect that is most controversial—is the dialogue the examiner and the child have in the attempt to understand the level of comprehension the child has. This dialogue, admittedly difficult if the child has no language, serves as a check system of the comprehension level of the youngster. However, language—albeit important—is not crucial in determining certain types of behavior. Improper answers may be wrong only in terms of these levels. Furthermore, it assists in understanding the weakness of and the necessity for backtracking to an unlearned or a poorly comprehended concept. This process in itself answers a question of performance that often is confusing to the teachers.

I think we are aware that many of our children will have to learn things without a true understanding of their meaning. To refer back to Piaget's concern with training for a specific task, as with any approach, modification and questioning are desired in terms of the purposes for which it is adapted. However, I think that it is crucial to know which facts are merely learned and which ones are learned and understood. This is basic, for when we work with the trainable we are concerned sometimes with functioning that must be learned if only to exist in society. We must not, however, be misguided into thinking it is true learning. I believe that Piaget, in his concern with schema and strategies, offers us an insight that is not the exclusive realm of the academicians and the experimentalists. For while one may use his insights as a basis for training, his theories also can be used as a functional inventory for experiences that will mesh with an individual's level of activity.

While Piaget may not be concerned with the problem of individual differences since his concern is primarily with processes underlying what are to him basic phenomena of all intellectual thought, I am not certain that the results of the experimental work relate to the problem of individual differences. I find the descriptive data more to this point. However, I wonder if we have not made individual differences a rally cry, while in practice we level everyone with a fusillade of "do this because we must." What I am suggesting is that perhaps we ought to consider the question of a basic process, and then ask how it applies to our youngster in terms of growth, development, and plateau. All too often we say, if we say this at all, "He is different, but we must get him to a point of performance, albeit minimal." We are in such haste that we do not look closely at the needs of the performance or the strategies which the child needs in order to perform. We acknowledge the difference without realizing the complexities of the goal and the path that must be followed. Through his exploration of what at times appear to be minutiae, Piaget offers us this approach, for basic to planning curriculum for the trainable mentally retarded is the tremendous gap of existential knowledge that exists between the adult and the child. Compound this difference with the cognitive and performance level of the trainable, and the difficulties of understanding nonperformance in terms of overt responses are even more formidable when one is faced with internal noncomprehension which is basic to overt performance and later more complicated performance.

Several years ago I had the opportunity to review the then existing experimental studies on learning with implications for classroom activities. This was a very difficult task. What I realize now is that experiments in reinforcement, stimulus response, mediating factors, operant conditioning, and all the other niceties of the learning process must be and can only be realized in the context of a phenomenon that is in juxtaposition to an environment that may or may not provide support for a particular level of cognition. It is my feeling that we must understand this level of knowing behavior prior to the utilization of the information that the learning experiments present. I believe that within Piaget's attempts to formulate hierarchical systems of thought processes and his concern with rules of thought and his general concern with development, some of our answers will come. Though this is not a new idea, it is new in that a massive attempt is being made to understand this phenomenon and utilize this pragmatically. I interpret this as initially an attack from within, rather than a bombardment from without.

I might include here, too, that approaches such as those employing the concepts of Itard, Siguin, and Montessori regarding the language and communication areas are those that need a development base, and I see no incompatibility here. Since Piaget is concerned with a picture of development, we can incorporate any methodology and approach that we think useful; however, it has to link up with a level of activity, and here is where Piaget offers us significant areas of understanding.

There are several good attempts (Flavell, 1963; McV. Hunt, 1961; Wolff, 1960) to collate the observations concerning the sensory motor and preoperational periods. The task ahead is a translation in viable terms in so far as it concerns educational practices; the questions we must ask are: What are the tasks, problems, and sequences? What checklists do we use? How do we coordinate knowledge about learning in the trainable mentally retarded with the developmental sequence? We have begun to move in this direction, first by infusing in our teachers the need for understanding development in terms of tasks and processes, and secondly, by the devising of materials and approaches that would interrelate with the developmental aspects of the child under instruction. I have included some examples of what we have produced; although they are still in the developmental stage, the responses of our teachers are good.

I should add that the approach is somewhat different in concept from Mary Woodward's for in correspondence (personal communication, January 10, 1966) she writes of her concern with "approximate ages at which the successive phases develop in retarded children" and utilization of Piaget types of materials. Since these are materials developed for and by teachers, functional levels are being considered, and materials more familiar to their classrooms are utilized.

Approach Number One (Contributed by Raymond F. O'Brien)

Piaget's developmental approach was used by one teacher to assist him in understanding and planning classroom experiences for a multihandicapped boy. The eight year old child had received no previous instruction; he was completely uncommunicative in English but responded to Spanish directions. Because of his severe cerebral palsy involvement, he apparently never had associated with other children. When he arrived in school, he was not able to dress himself or make his needs known. The teacher accepted this obvious retarded development and began to develop various sensory and motor skills in the child. As he had many other children about him, the teacher utilized all of Piaget's views on the sensory motor stages. However, because of the boy's age, there was some overlapping. Concerned with the development of skills, the teacher's aim was primarily communications with the child.

Jean Piaget Schema: Outline of six stages in sensory motor period	Activity (Communication)	Method
1. Sucking; crying; vocalization; movements of head, arms, and the trunk.	To smile, laugh, guffaw.	Puppets and cartoons. Repeat.

Jean Piaget Schema: Outline of six stages in sensory motor period	Activity (Communication)	Method
2. Primary circular reaction. Child reaches out for and grasps objects in environment to satisfy himself.	To recognize objects.	Showing and hiding familiar objects: hat, coat; then more sophisticated objects, e.g., ball, etc. Play game: "Fly Away Jack..." Repeat.
3. Secondary circular reactions. Generalizations. Two important developments occur at this state. The first is anticipation of effects which epitomize the beginnings of intentionality and a distinction of means and ends. Second are the beginnings of imitation.	To hide and find objects.	Hold and recognize same objects--hat, coat. Carry them. Repeat.
4. Coordination of the secondary schema, i.e., separation of the means and ends, by making motions to remove obstacles that are set up between the goals and the accomplishments.	To pick out his objects.	Select ball, pencil, crayons, books, materials from his desk. Repeat.
5. Tertiary circular reaction. Ability to set objects in motion. Through this, he learns about objects in space. He can roll them, slide them, and mouth them.	To push and roll objects.	Setting into motion toys and wheels, balls, etc., retrieving same. Repeat.
6. Invention of a new means through mental combination makes its first appearance at this state; so that something to look at becomes something to grasp; and something to grasp becomes something to suck. Therefore, one goes in reverse order.	To join groups; to socialize.	Music—circle. Rhythm. Beat to music. Part in play.

After a six month period of applying Piaget's observations (which was incidental to this study), the teacher noted that the child was able to dress himself and had become toilet trained. The child also could communicate on an infantile level. He does not verbalize in Spanish but responds to English directions. His vocabularly is presently about ten words but seems to be increasing. He now laughs at amusing situations readily without cue from the rest of the class.

Approach Number Two (Contributed by Josephine De Stefano, Elayne Horn, Marjorie McAvoy, Harriet Salkind, Jeri Teplitz, and Terry Walsh)

The report of six teachers who followed the Piaget schema outlines stage and continues to the transitional period of sensory motor to conceptual schema. Realizing the importance of recognizing and correcting the basic visual motor defects in training the perceptually impaired, these investigators demonstrated devices and materials which could be used in stimulating sensory motor development.

Piaget Schema	Activity	Method
Stage 4: Child is able to coordinate several actions and apply them to new situations.	Coordination of movement; pushing or pulling an object.	Hammer board: striking peg with hammer to make it move; pull toy.
Stage 5: Child explores.	Applies action as a tool for exploring. Object displacement. Increased awareness.	Stack tower.
Time.	Objective sequence of displacement, perceived independent of motor participation.	Nuts and bolts. Mailbox: geometric forms are dropped into appropriate slots, reappear when box is opened. Stack rings on stick in sequence to fit.
Stage 6: Object concept.	Permanent mental representation.	Mechanical Busy Box (different types of latches to open).
Space.	Displacement and return to order	Form board.
Causality.	Means of movement.	Busy Board: pushing, pulling, vertical, horizontal, etc.
Time.	Apperception of objective.	Repeating bead patterns, color, or form.
Transition from sensory motor to conceptual schema	Functional exercise	Construction set, erector set. Nursery school and early childhood play equipment.

In addition to these training devices to help the child complete the sensory motor stage, the following activities are geared to help the child organize his environment:

1. Matching concrete objects, geometric forms, and topological forms.
2. Sorting and categorizing primary colors, other colors, shapes and geometric forms; reproducing simple color patterns (peg board); and reproducing simple form patterns (Ford blocks).
3. Form representation by simple two part puzzles of familiar objects, simple three part puzzles of familiar objects, simple puzzles of geometric shapes.

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ABSTRACTS

HABILITATION OF SEVERELY RETARDED CHILDREN

J.S. Birnbrauer

An analysis of the behavioral repertoires of moderately to profoundly retarded children and the typical conditions which exist in institutions leads to the conclusion that the current treatment of these persons is most likely to result in minimal development. Objectives, if there are any, are vague and low; these children obviously do not reinforce ordinary attempts at instruction, and many will not benefit significantly from making surroundings more attractive, stimulating, or entertaining.

An alternative is to both enrich the environment and arrange it so that response consequences are carefully manipulated, using those consequences (reinforcers) which the children indicate are necessary. For some, food appears to be the only effective reinforcer; for some, effective and practical reinforcers are difficult to find.

Establishing such an environment is fraught with difficulties. It is expensive in time and money. The physical arrangements of institutions designed with custody in mind are not suitable for training purposes. The ratio of attendant to resident is so low that consistency, immediate reinforcement, and programing of learning experiences are not possible. The demands upon these much maligned employees are often quite unreasonable. The major obstacle stems from the fact that the present methods generally result in immediate reinforcement of the children's caretakers. For example, restraints and drugs prevent destruction and decrease noise and activity, thus removing aversive conditions with minimum expenditure and avoiding the disapproval of superiors; letting the child have his way avoids tantrums and other aversive interactions. A second obstacle is that some of the procedures which one might derive from behavioral principles are regarded as inhuman or unkind. This may be the case, but it applies to the successful socialization of any child.

These cycles which tend to maintain behavioral deficits or worsen them must be interrupted in order to determine what the potential of each child may be. Whether effective and economically feasible training environments can be designed is an empirical question.

STRATEGIES AND TACTICS IN SUPERVISING SCHOOL PROGRAMS FOR THE MENTALLY RETARDED—SOCIAL CUE INTERPRETATION OF RETARDED ADOLESCENTS

Ethel M. Leach

One of our greatest problems in educating retarded youth is providing the kind of training they need to enable them to live adequate and successful lives in the world of adults. Teachers and placement personnel who work with retarded youth have been concerned about deficiencies in social interaction as an important cause of failure to make school, work, and/or social adjustments.

A project, "Perceptual Training for Social Behavior: A Pre-Vocational Unit for Retarded Youth," was designed to aid those who work with retarded youth who are preparing to transfer from school or institution to vocational employment.

The experimental unit consists of daily lessons fully written out as a teaching script, a complete kit with all necessary teaching materials, including tapes, slides, work sheets, role playing suggestions, trip suggestions, games, money, etc. A teaching unit thus prepared allows for experimentation and evaluation.

The unit is unique in that it is presented in visual, oral, and aural form and requires no, or a very low level, reading ability. It consists of an eight weeks series of lessons, each designed to require approximately an hour a day. The lessons present social cues, interpretations of those cues, and appropriate behaviors related to specifc social settings.

As a particular feature of the material in its focus on teaching pupils to read social situations, a test to measure social inference ability (TSI) was devised. The test consisted of a set of 35 photographs of interpersonal situations ranging from simple to complex. The pictures were selected for their nonambiguity. Usually the interpretation calls for experiential information. The test was administered before and after the teaching unit.

Results have been positive on every test item, and therefore one may assume that it is possible to instruct for acceleration in social inference.

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COMMUNICATION DISORDERS

HEARING ASSESSMENT OF NEUROLOGICALLY IMPAIRED CHILDREN

Jerome G. Alpiner

Numerous estimates of the incidence of hearing impairment in school age children, ranging from 2 to 21 percent, have been reported. A generally accepted average is 5 percent (Connor, 1961). For purpose of definition, the United States Office of Education refers to school age children as those from 5 to 17 years (Frisina, 1963). Preschool age children usually are referred to as those between the ages of 2 and 5. Estimates of the incidence of hearing impairment in the preschool group are more difficult to obtain, since these children are not available in captive groups, as in the public schools, for audiologic screening and/or evaluation. Also to be considered is the possibility that other problems may be present with the hearing loss. This possibility increases the responsibility of the clinical audiologist in differential diagnosis.

The purpose of this paper is to discuss the audiologic assessment of the neurologically impaired child on a comparative basis with other disorders. For the purpose of this paper, focus will be on preschool and primary school children, although it is quite possible that some of this information may be applicable to older children as well.

Neurologically impaired children are defined as those children who have some deficit of the central nervous system, such as aphasia or other kinds of brain injury; they may also possess some auditory deficit of a conductive, cochlear, retrocochlear, or mixed nature. In the clinical evaluation situation, preschool children appearing to be deaf may actually be suffering from a central nervous system disorder (language difficulty). It has been speculated that some children in schools for the deaf are actually victims of language problems rather than deafness. This author has seen several such children in a school for the deaf. When the language problem was uncovered and appropriate therapeutic methodology was employed, some progress in communication was noted.

In attempting to evaluate hearing in the neurologically impaired child, differential diagnosis requires the consideration of other problems, including mental retardation, psychological disturbance, and true hearing loss. As indicated, combinations of the above problems are possible, thus complicating a diagnosis to determine which problem is the major one in the communication breakdown. It is obvious, therefore, that the differential diagnosis, in addition to audiologic evaluation, may require the services of speech pathology and related disciplines such as psychology, neurology, otology, and others.

Normal Language Development in Relation to Normal Hearing

As the concern for differential diagnosis becomes apparent, it is important to be aware of normal speech and language development. If, as professional workers in the field, we must make judgments about deficient hearing and language systems, we must understand those aspects of normal development. It is necessary, therefore, to deviate somewhat from the specific subject briefly to relate some general aspects of normal language development as it pertains to a normal hearing mechanism. In the first stage of normal language development, reflexive vocalizations occur and the new infant appears to react to his environment with crying that seems not to fluctuate in different environmental situations. By the end of the first two weeks, differences related to the nature of the stimulating situation begin to appear (Lassman, 1951). Cries become meaningful as the infant becomes aware of needs due to hunger and discomfort. Between six and seven weeks, the infant with normal hearing begins to show by his reactions that he is aware of the sounds he is making. This "babbling" stage is characterized by general vocal play. It is significant, according to Berry and Eisenson (1956), that through the babbling stage, normally hearing and deaf children sound similar. After this period, the normally hearing child's babbling begins to resemble tones and sounds of those persons in his environment. At approximately seven months, another stage, sometimes referred to as "lalling" or repetition of sounds, begins.

Language, as a result of normal hearing input, begins to emerge in a meaningful manner. This is because inner, receptive, and expressive language are developing normally (Travis, 1957). Inner language is the use of language symbols for the purpose of inner thought; receptive language is used to understand others; expressive language is utilized to make oneself understood to others. Since speech is a learned function and since speech develops in a normal way because it is heard, a normal hearing mechanism must be in operation. Various estimates have been reported regarding the vocabulary of the normally hearing child. There is not always agreement as to whether or not the size of the vocabularly reported is recognition of words only or the number of words a child can actually repeat.

One of the classic investigations (Smith, 1926) reported that a child has a vocabulary of three words at the end of the first year, 272 at the second birthday, 1540 at the fourth birthday and 2562 at the sixth birthday. Another study (Smith, 1941) indicated that a first grader had a vocabulary of 24,000 words. It is highly probably that, in this era of television and closer communication environments, the reported figures are rather conservative. Of importance here, however, is the fact there is some index as to what we might expect from a normally hearing child.

Considering the task of assessing hearing in the neurologically impaired child, it is usually necessary to have some idea of the patterns which emerge in possible hearing impairment in the mentally retarded, psychologically involved, and hearing impaired child, as compared to the child with brain injury. Due to the possibility of multiple handicaps, professional judgments, rather than specific scientific test results, may be made by the diagnostic team, particularly for young preschoolers. Since we do possess certain knowledge about behavioral characteristics of these various problems, behavioral patterns may be of contributory significance in differential diagnosis. Hardy (1965) states that the answers to hearing involvement will be derived, not from any single or specific audiometric procedure, but from a battery of careful measurements and observations.

The patterns of each of these problem areas are discussed in terms of auditory responses as would emerge in the clinical audiologic evaluations. Although at times it may appear that there is considerable deviation from discussing hearing impairment alone, it should become evident that speech, language, and hearing are actually very much related processes.

Characteristics of Peripheral Hearing Loss

It is generally agreed that the child whose problem is hearing impairment will respond consistently when the auditory stimulus utilized is sufficiently loud to compensate for the loss in sensitivity. In the younger infant up to the age of two, the response may be a consistent eyeblink to the auditory stimulus or a movement of the head in the direction of the stimulus. Past the age of two, various types of play audiometry may be utilized, such as placing a peg in a pegboard, dropping a block in a box, or some other device in which the child is conditioned to respond to a tone or some other auditory stimulus. For the child who will not accept earphones, free field testing may be utilized, and at least information regarding one ear may be obtained. Although the levels of response may not be precise threshold indicators, it is possible to categorize the impairment as a mild, moderate, severe, or profound hearing loss. Subsequent hearing aid utilization will usually result in an improvement of awareness to the type of testing materials used.

Most of these children will respond well to hearing therapy, and speech and language will begin to develop. The rate of speech and language development and the intelligibility of the child's speech will, of course, depend on the severity of the hearing impairment.

In the case of a conductive hearing impairment or overlay, it is quite possible that the problem will be corrected or improved through medical or surgical treatment. The primary exphasis is that the child with an impairment to the hearing mechanism(outer, middle, and inner ear) will respond consistently in the test environment when the intensity of the stimulus is increased above his hearing threshold levels.

Characteristics of Hearing Loss in the Mentally Retarded

It is necessary to classify the mentally retarded according to intellectual ranges in determining audiologic techniques utilized in evaluation. Further complicating evaluation of those in this category is that it is not always possible to assess the intelligence of the younger child. If hearing impairment is present, the intelligence levels may be deceiving, due to retardation of language and speech development attributable to hearing loss. Five levels of IQ ranges generally considered are: Level I, 85-70 IQ; Level II, 69-55 IQ; Level III, 54-40 IQ; Level IV, 39-25 IQ; and Level V, less than 25 IQ and "untestable" (Lloyd and Frisina, 1965).

Levels I and II are more similar in evaluation to nonretardates. According to this same report, conventional speech audiometry is extremely useful for Levels I, II, and III. Modified play audiometry may be helpful in testing the young child with mental retardation. Greater difficulty is encountered in dealing with levels IV and V. In terms of emerging patterns, the mentally retarded interprets in his own limited way; the child learns by association and depends greatly on reinforcement for continuing to learn by association. The mentally retarded child will respond directly or indirectly when sound is made loud enough either to gain his attention or to compensate for a hearing impairment if one is present.

Other information may be helpful in the diagnosis. The mentally retarded child may show retardation in most areas of development, including speech and physical and social development. It is advisable to test the child suspected of mental retardation on more than one occasion and to obtain as many responses to acoustic stimuli as possible. Correlating this information with case history information regarding responses in other environmental situations may be helpful in establishing general hearing levels. It must be kept in mind, according to Whipple (1965), that in work with the mentally retarded, the behavior is different, the responses are different, the organism is different; failure to realize this will only confound the testing procedures and lead to ambiguous hearing test results.

Characteristics of Psychological Hearing Impairment

Emotional disturbances present in children with communication disorders may range from relatively mild problems secondary to peripheral loss of hearing, at one end, to childhood psychosis including autism and schizophrenia, at the other (Miller and Polisar). Little information is available concerning children with hearing loss due to psychological disorders. One of the estimates reported deals with a group of 500 cases of adults (military personnel), in which 15 percent were found to have some indication of psychogenic overlay to their hearing loss.

Reference may be made to hysterical deafness or conversion deafness in which a deep emotional conflict may manifest itself in total deafness, i.e., the individual does not consciously hear the auditory stimulus even though the hearing mechanism may be functioning normally. It is obvious that the need for psychological and psychiatric referral is in order to determine the extent of the problem and to plan for appropriate therapy. Since little is known about the prevalence of hysterical deafness in children, it is difficult to discuss the problem in terms of audiologic evaluation. Case history regarding family relationships may help to provide information which would contribute to audiologic evaluation.

Loomis (1958) discusses pathological symbiosis, defined as a relationship between mother and child which extends beyond the normal developmental period (perhaps psychosexual development), where neither the child nor the mother is able to make the dependence break. Significant clues may be normal speech until the break with the mother or a substitute reverting to baby talk and then possibly a cessation of language, giving the impression of deafness, which to the child is a real deafness at the conscious level. In the clinical evaluation situation, the appearance may be that of a deaf child. It is not known whether this behavior occurs in the young child.

Another major category of psychogenic hearing impairment is the autistic child. We may define autism as a situation in which a child lives in an unreal world by himself. Whatever the reason for the autism, the characteristics of such a child may manifest themselves in a type of mutism, i.e., a refusal to speak, even though language had developed, and a great tendency to reject communication and other forms of auditory stimuli. This child, for example, may cup his hands over his ears when any kind of speech or sound is presented. He may attempt to escape from the sound by leaving the environment in which the auditory stimulus is presented. The autistic aspect of hearing would tend to differ from the hysterical deafness in terms of the former more obviously rejecting sound and the latter appearing to behave more like the true deaf child. As more is learned about hearing loss in children with these kinds of psychogenic problems, perhaps a more accurate differential diagnosis may be made.

Characteristics of Hearing Impairment in the Neurologically Involved Child

Some time ago, Stevens and Birch (1957) proposed the term Strauss Syndrome. They felt that the child with a central nervous system impairment illustrated any one or more of the following observable characteristics: (a) erratic and inappropriate behavior on mild provocation, (b) increased motor activity and inappropriate behavior disproportionate to the stimulus, (c) poor organization of behavior, (d) distractability of more than ordinary degree under ordinary conditions, (e) persistent faulty perceptions, (f) persistent hyperactivity, and (g) awkwardness and consistently poor motor performance.

The above emerging patterns assist the audiologist in the evaluation of the brain injured child. From the audiologic point of view, one finds a consistent pattern of inconsistency. This is the child who may respond to a given auditory stimulus at a given intensity on one occasion, and then, in a duplicate situation, give the impression of partial or total deafness. Parents may report during case history this same pattern of inconsistency of response to auditory stimuli at home. It is quite possible for this child to have normal or near normal hearing and, because of these inconsistent patterns, give the appearance of severe impairment. A knowledge of the psychopathology of brain injury must be known if differential diagnosis is to have an opportunity for success. It is possible that the audiologic evaluation of the neurologically involved child may take many testing sessions and still leave the audiologist in the predicament of not really knowing actual levels of auditory awareness.

Summary of Audiological Characteristics

The general patterns of these four major categories of problems in terms of speech, language, and hearing may help provide the professional diagnostic team with information which, hopefully will lead to successful communication rehabilitation. A summary of these patterns may help to strengthen the point: the true hearing loss child responds consistently when sound is loud enough; the first three levels of mental retardates may be audiologically evaluated as the true hearing loss case, with greater difficulty encountered with levels IV and V in which the child responds in a very limited manner to the best of his intellectual ability. Actual threshold levels may never be acquired but, with repeated evaluation and observation, enough information may be obtained to indicate the severity of hearing impairment. The child with hysterical deafness may give the pattern of total deafness, even though speech had developed or was in the developing stages and no other factors could explain the reason for hearing impairment. The autistic child presents the pattern of attempting to reject all speech and sounds and may overtly attempt to escape from the environmental situation when he hears. Finally, the neurologically impaired child may give the indication of inconsistent responses to audition.

The nature of the major problems described indicates the need for the teach approach. Although the patterns described have been generalized and, in some cases, oversimplified, it would appear that the need for team diagnostics shows most clearly that speech, language, and hearing are closely related and in many cases cannot be treated independently in differential diagnosis.

Later Developments in Audiologic Evaluation

In addition to routine pure tone and speech audiometry and modified versions of the same (usually referred to as play audiometry) in which we now have some idea of how children with various problems would respond, electrodermal audiometry (EDR) and electroencephalic audiometry (EEA) have gained the increased attention of the audiologist, physician, and others.

Pavlovian conditioning is utilized in EDR although other modifications are used, with a mild shock as the unconditioned stimulus and the pure tone as the conditioned stimulus. The nature of this testing is that, with the pure tone being used as the warning signal a few seconds before a shock is given, a child can be conditioned. Significant skin resistance changes then develop following the presentation of the tone in anticipation of the shock. Although in great use after its inception, EDR does not now appear to be as popular in children's evaluation as it was previously. Some audiologists feel from personal experiences that, in cases where EDR was successful, play audiometry also was successful and not as traumatic. In cases with some children where play audiometry was not successful, neither was EDR. Although EDR has its contribution in differential diagnosis, particularly with malingering adults, the procedure, unfortunately, proves to be of least value in those cases where it is most necessary (Miller and Polisar, 1964). This, of course, includes the hearing assessment of the neurologically involved child.

Intensive research is being conducted with EEA, and there is promise that this technique may become an effective method of audiologic evaluation in the young child. Robert Goldstein (1963) and A.J. Derbyshire are devoting considerable efforts in the use and further research of EEA. In this procedure, electrical activity of the brain, with appropriate instrumentation, can be recorded from electrodes applied to the scalp with small discs or under the scalp with fine needles. Most EEA studies have concentrated on young children, because other behavorial and electrophysiologic audiometric techniques are more easily applied to older children and adults.

Most of the young children studied by EEA have had some communication disorder. These young children are usually asleep when they are sedated, because restless behavior can complicate the testing procedure. This is most advantageous when dealing with children possessing psychopathologic characteristics of central nervous system disorders. Research (Lowell, Williams, Ballinger, and Alvig, 1961) has shown that the method may be valuable for the detection of minute, previously undetectable auditory responses and may prove useful in testing children with central nervous system disorders, as well as the emotionally disturbed and other uncooperative subjects. In time, additional research should indicate the effectiveness of EEA.

Conclusions

It is apparent that a wide variety of audiologic techniques are available for use in the evaluation of the neurologically impaired child. Yet, it should be understood that neither one technique nor all of them may provide us with all of the information needed to diagnose and/or rehabilitate the child. Humanistic factors, i.e., the clinical audiologist and his colleagues from other disciplines, may have to consider themselves as artists in addition to scientists in order to effectively diagnose these children. Awareness of research, its application, and clinical experience may give the impetus to better evaluate when all of the answers are not fully known, as well as the courage of conviction to say "I don't know" in those situations when the answer is not clearly defined.

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CRITIQUE ON CURRENT AUDITORY TRAINING EQUIPMENT

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In speech audiometry we are able to measure two dimensions of an auditory impairment, namely, the loss of sensitivity (or loudness) for speech, and the loss of speech discrimination. From the first test we are able to make judgments regarding how much sound must be amplified to approximate normal levels. Like vision, normal hearing is a distance sense. That is, auditorily the normal person is in contact with his environment far beyond the area immediately surrounding him. He is able to understand conversational speech at a considerable distance and under very adverse conditions. For the hearing impaired individual, the loss of sensitivity or distance is proportional to the amount and kind of the defect. Partial restoration of distance can be accomplished by amplification in the form of an individual or group hearing aid.

Unfortunately, making sound louder does not necessarily make it clearer; in fact, in some instances the immediate effect on amplification is that sound is made less clear. It is this lack of clarity which necessitates the habilitation of some individuals and the rehabilitation of others. Auditory training, then, is based on the philosophy that the sound received by these individuals can be made more meaningful.

History of Auditory Equipment

Perhaps the best way to define the relationship among the child, hearing aid, and teacher (and I now use the word hearing aid to refer to any amplification unit) is to view our profession historically. Prior to electronic amplification, the teacher of the deaf taught ad concha or speaking directly into the ear. There were two disadvantages to this training method, however. First, the child was unable to see the teacher's lips; and second, all instruction had to be on an individual basis.

As early as the 1700's, the speaking tube or hearing trumpet was used as a form of amplification for deaf children, as it allowed the child to see the teacher's lips while receiving amplified sounds at the ear. Later, Yankee ingenuity, combined with technology, provided multiple conversation tubes, allowing several children to receive the sound of the teacher's voice simultaneously. It is interesting that these devices had relatively good low frequency response characteristics, and the loudness of the speech received was limited only by the power of the teacher's voice. Though it is difficult for us to conceive of it, there are many places in the world today that still use the conversation tube as the main amplifying device for the deaf.

Following the invention of the vacuum tube was the first wearable hearing aid by Acousticon, and in 1924 the Radioear Corporation built a group trainer for amplifying speech to the deaf. Like many electronic devices built during this era, the Radioear unit weighed over 300 pounds and was extremely complicated in operation. Early electronics was responsible for bringing a number of peculiar devices to schools for the deaf. Bone conduction auditory trainers were rather common during the late 20's and early 30's, as were the hand held, air conduction units. During this period it was believed that the primary requisite for training devices was gain and output. Little was known about frequency response characteristics or the dangers of overamplification. The vacuum tube trainers gave the first clue of the value of stimulating residual hearing. Though they were inherently noisy units that did little more than to make the sounds louder, the world of education was astounded by the results from these crude electronic giants.

Since the introduction of electronics in the field of education of the deaf, the development of the group trainer has closely paralleled the development of the hearing aid. Because of its size, however, electronic characteristics of the group trainer have been substantially better than the individual aid, and hence its use is preferred. This preference may be due in part to the findings of the 1957 Group Hearing Aid Project. Until the initiation of this work in 1946-47, few systematic studies of amplification had been conducted. According to Hudgins (1957), one of the senior authors, "The primary objectives of the project were to explore the possibilities of auditory training for profoundly deaf pupils, to determine the optimum design objectives of a modern group hearing aid, and to experiment in the field of methodology to determine practical methods for the employment of group hearing aids in the hands of skilled teachers." The results of this investigation showed that a consistent auditory training program, in conjunction with high fidelity auditory equipment, was a significant improvement in speech perception.

For the hearing aid industry at least, the mid 50's were a great turning point. The use of transistors in hearing aids virtually eliminated the body worn vacuum tube instruments and gave rise to ear level hearing aids. Although it was expected that semiconductor integrated circuitry would make its appearance in conventional auditory training units, it has not done so except in a limited manner in the small, solid state, transistorized amplifiers useful for individual work.

The newly trained teacher of the deaf often finds himself in the position of having to select auditory training equipment. Electronic terms such as solid state, wide response, and micro circuitry have little meaning to him. His criteria for selection of equipment are more often based on financial limitations established by a school or agency rather than by any philosophy of education. Essentially there are four types of amplifying systems in use today: first, the individual hearing aid; second, the conventional amplifier utilizing earphones; third, what is rapidly becoming known as carrier wave equipment; and finally, inductance loop devices.

Though the hearing aid is seldom thought of as a classroom amplifier, it nevertheless fits the general description of an auditory training unit. That is, it is made up of a microphone, an amplifier, and a receiver. The price, which averages $300, actually ranges from $50 to $700 depending, of course, upon the features which are incorporated. It is a system which is familiar, at least in design, to most teachers of the deaf. Its use as a classroom amplifier will be discussed later.

In its simplest form, the conventional group hearing aid consists of one or more microphones, a high fidelity amplifier, and from 2 to 12 sets of earphones. It is noteworthy that the basic unit has not changed appreciably since the introduction of the first device by Radioear. Smaller components have altered the design, but most additions have been dictated by philosophy. Where the early amplifiers had but few operational extras, their 1966 counterpart gives numerous choices with regard to microphones, earphones, and supplementary devices, such as turntables and tape recorders. For instance, most often the manufacturer's retail price is based on individual components, allowing the teacher to select what is needed for her particular classroom. As an example, the entire inventory of training units at Clarke School is valued at $31,800 (basic compression amplifier, $550; one teacher microphone, $45; one talkback microphone, $41; one control box allowing the child to control the loudness of signal, $12; a patch cord from the amplifier to the control box, $5; a complete headset, $36). When you consider that there are eight children per class, the minimum cost for amplification in each classroom with this equipment is $1,060. In many cases the teacher will elect to have multiple talkback microphones and perhaps a record player. In this case, using this one manufacturer as an example, the cost would change to $1,487 per class. It should be pointed out here that the equipment used at Clarke School is referred to as low impedance equipment, using dynamic microphones. Where a program has a very limited budget, it is possible to purchase good, high impedance equipment at a considerable savings. The major difference between the two, other than price, is the fact that the response characteristics of the low impedance equipment and its ability to handle power are somewhat better than the other type.

The third form of amplification represents a departure from the conventional sytems. Referred to as carrier wave amplification, this relatively new device is currently being marketed by two American companies. Unlike conventional amplification, the purpose of carrier wave is to provide a wireless system for amplifying speech to the deaf. Its components are its microphone, a transmitter/amplifier combination, a wire loop, and a receiving apparatus. Carrier wave amplification operates very much like a radio station; that is, it broadcasts high frequency carrier signals having a speech signal superimposed upon it. This carrier, plus the speech, is transmitted to the loop which acts as a transmitting antenna, sending the signal through the air to a receiving device. The receiving device then filters out the carrier wave, leaving only the speech signal which is heard by the child.

The advantages of this system are obvious. It allows for complete mobility, leaving the child free to move about the classroom communicating with his classmates and the teacher simultaneously. One might ask what the carrier wave system offers that the ordinary hearing aid receiver does not. The advantage is that the sound delivered to the hearing aid via the air becomes weaker as the child moves progressively farther away from the speaker, whereas with carrier wave systems, if the child remains in the classroom area, the sound of speech is maintained at a constant level. Carrier wave systems are designed so that adjoining classrooms operate on different frequency bands. The reason for this is to prevent spillover of signals from one room to another, either on the same floor or in classrooms above and below each other. For older children who move from one classroom to another, it is possible within limits to readjust the receiver to the carrier signal of the classroom being entered.

The last form of amplification is perhaps the least well known and the most controversial of the four. Because it utilizes a wire loop, it is often confused with the carrier wave system. This method is called inductance or induction loop amplification and was reported on by Bellefleur and McMeniman in Volta Review. Specifically, it is a combination of traditional amplification and carrier wave amplification. It is similar to conventional amplification in that it is often merely a modification of a standard group amplifier. The teacher's voice is delivered to earphones, it is sent to a wire pattern which is laid out around the room. This wire radiates the sound into the air electromagnetically in much the same manner as the carrier wave unit. The receiving device in this method is the individual or body worn hearing aid. As the pulsations characteristic of speech are transmitted via the loop, they can be perceived by anyone who is wearing a hearing aid with a telephone attachment and who is within the perimeter of the wire loop. It is important that the difference between carrier wave systems and low frequency ILA be stressed again. Carrier wave systems require a transmitter and receiver of special construction whereas the low frequency ILA utilizes a standard group amplifier and a hearing aid with a telephone attachment.

When selecting auditory training equipment, it is advisable to do it in a systematic manner. Three questions should be answered. (a) What is my philosophy of auditory training? (b) What characteristics and features of commercially built units fit this philosophy? (c) What compromises am I prepared to make because of the amount of money I have to spend?

After setting down his philosophies in chronological order, the teacher should write to the various equipment companies, most of which advertise in Volta Review and other professional publications, and upon receipt of descriptions check off which companies and trainers meet the various requirements. At Clarke School, the teachers in training receive a chart which contains the names of the companies, the addresses, and an itemized description of the various pieces of equipment available. This chart is set up as a cross reference index so that he can check off which devices offer the components he feels are most important. This list includes prices, so that if certain manufacturers have comparable characteristics, price could then be the deciding factor.

The Hearing Aid as an Auditory Training Device

Many teachers of the deaf, particularly those working with children on an individual basis, prefer to use the hearing aid of the child as a training unit. In such an instance, the instrument is held by the teacher in the same manner as a microphone. The teacher and child sit closely face to face, the hearing aid microphone between them to serve as a receiver for the voices of both the child and the teacher. Although it is true that this procedure is used primarily by itinerant teachers and those unable to afford group amplifiers, there are some very positive aspects to this method of amplification in the training situation. Most important, but perhaps the least obvious, is the fact that this is a very realistic method of teaching. The hearing aid of the child is the device he normally uses as his bridge with the world. Though it is well known that the hearing aid is a poor sound reproducer when compared to most group hearing aids, there is a consistency of training which might well offset its electronic shortcomings. Furthermore, an importance has been attached to the hearing aid. The child sees the teacher use the device, experiences his own attempts at correction through it, and takes what is learned into the outside world. It might also be pointed out that a number of schools for the deaf use the individual hearing aid as an amplifier, a few as the only form of amplification, and many as a supplemental amplifier in situations where mobility is desirable.

The major disadvantage of this technique is the limitations of the hearing aid itself. Most of you will recall from physics of sound that, as the distance from the speaker increases, the intensity of the sound decreases at a predictable rate. For many children who have a narrow dynamic range after ten feet or less, they are out of contact with the teacher. It might be pointed out that induction loop amplification is an attempt to use the hearing aid as the training device, but in a way that overcomes this problem of sound reduction as a function of distance.

Group Amplifiers

Almost every teacher of the deaf and hard of hearing can elaborate on the problems of the group hearing aid, but few can tell you about its advantages. Both are worth reviewing. As a rule of thumb, if you have a choice of two amplifiers, one weighing 2 ounces and the other weighing 25 pounds, both purporting to deliver the same sound to a deaf child, the heavier one probably does the job better. Electronics is a give and take science. That is, in order to obtain something you must expect to sacrifice something. Now it is true that all amplifiers are becoming smaller, but there will always be a size difference. In order to have a frequency response from 20-20,000 cycles, to have a device which will operate up to 30 pairs of earphones, plus stand up under considerable punishment, it is necessary to have larger, more expensive components. The question may be asked then about the solid state transistorized units which are now becoming available. Again, a sacrifice has been made in order to produce a smaller device. In this case, the solid state unit is difficult to repair and parts have to be matched precisely.

Generally, group amplifiers do the job by delivering the best possible sound; but they are expensive, bulky, and do not lend themselves to the need for mobility. Moreover, there are those who argue that, since the deaf child is part of the equipment, the limitations imposed by his hearing loss preclude the need for high fidelity amplification. Also on the negative side is the upkeep after the initial purchase price. A study conducted by the research department of Clarke School showed that the replacement costs for control boxes, patch cords, and earphone supplies for the 1964-65 school year were $1,819. This did not include microphone replacement and repair or the cost of the amplifier upkeep, which would most likely have raised the cost to upwards of $3000.

There are several reasons why conventional group amplifiers are used and preferred over the other devices. Perhaps the most common of these is that the majority of teachers train on the conventional systems. Most academic programs for teachers of the deaf are located in established schools and universities and are poorly equipped to give the teacher in training the variety of experiences with new or experimental units. The younger teachers will, therefore, select what they feel most comfortable with. The teacher who has had many years of experience, on the other hand, often resists changing to the newer systems, because he is used to the conventional device and feels secure with it.

I would suspect that few teachers select the conventional amplification system for the correct reason. If one holds the philosophy that the deaf child must have available to him the widest frequency spectrum possible, provided under the most closely controlled circumstances, then the conventional system is the only choice. Few would argue that the hearing aid, carrier wave equipment, or inductance loop have the fidelity characteristics of the larger amplifiers, though many would argue that these are necessary.

Carrier Wave Equipment

Carrier wave equipment resulted from the same need that prompted inductance loop amplification, that is, mobility of the deaf student in the teaching environment. Unlike conventional amplification, if the teacher wishes to talk to a child at the desk or have the youngster come to the blackboard, it is unnecessary to put on a hearing aid or to use a control box located at the front of the classroom. The child need only walk to the teacher or the blackboard, as the carrier wave receiver will keep him in contact auditorily at all times. An additional feature of this system is that it can be used (in school) as a hearing aid. Recent innovations by one eastern concern make this receiver unit as childproof as possible. Because there are no control boxes, patch cords, or earphone cords per se, the repair costs and teaching time lost are far below that of the conventional amplifier.

The carrier wave system is not without acoustic and philosophical shortcomings. Though it is thought that this system has no spillover problems, in actual practice some do occur. Particularly in schools having many floors, the lack of channel selectivity contributes to spillover and, hence, restricted use. A school considering implementing this system should also investigate the battery cost. Unlike the individual hearing aid, the school owns the receiving apparatus and in most cases pays for the cells to operate the unit. One of the most objectionable features of carrier wave equipment is the size of the receiver. Though this will have little influence on children up to 12 years of age, it becomes a real consideration with teenagers, particularly girls.

Inductance Loop Amplification

Inductance loop amplification offers few of the features of conventional amplifiers; the fidelity is poor and the system, at least as far as the aid is concerned, is fragile. Many hearing aids are still not designed for ILA systems, and many amplifiers are not designed to give adequate power or flexibility. Moreover, low frequency ILA is adversely affected by certain types of electrical wiring and lighting. Problems of spillover of signal, though partially under control, are still a disturbing influence.

I would be remiss in my obligation to you if I did not point out that the ILA devices being marketed today are far from satisfactory in both design and performance. I would discourage any school which does not have competent electronic personnel or at least electronic consultants from purchasing this system. At the present time, the only schools having satisfactory ILA experiences are those located in single story buildings and having noiseless lighting fixtures. The ILA system lends itself best to hard of hearing children, because at present the power loss between the loop and hearing aid precludes its use with severely deaf youngsters. Many institutions which have children whose aids are not suited to ILA have the additional problems of finding commercially built ILA systems that will efficiently operate earphones and loop simultaneously.

And yet, low frequency ILA using the hearing aid of the child is a potentially good system. It has good mobility, adequate talkback, and is philosophically sound from this writer's point of view. It is a system where the hearing aid is used not only in the classroom for training, but in the outside world as well. I think there are few that would disagree that consistency of training has been lacking in most programs for the deaf, at least as far as auditory stimulation is concerned; and perhaps ILA will offer some solution to the problem once the myriad of electronic shortcomings are solved.

From a philosophical point of view, if the teacher feels that child mobility should be combined with good fidelity, then she should select a carrier wave system; for superior fidelity and control, the conventional amplifier; for realism and consistency in group teaching, inductance loop amplification; and for realism and consistency in a one to one situation, the individual hearing aid.

With regard to which system is best, it must be stated that the selection of any auditory equipment should necessarily be consistent with a philosophy. In actual practice, however, finances or the presence of existing equipment often dictate what is actually used in the classroom. Where it is possible to make a choice, I cannot stress too strongly the need to select equipment to fit a philosophy of education. The fact that a device is new and different or, conversely, that the present equipment has worked out well for years is not a criterion for its use. The very existence of induction loop and carrier wave systems at this juncture indicates changing philosophies and dissatisfaction with conventional amplification devices. For years teachers have been tripping over microphone wire and have been immobilized by a length of cord; hence the existence of wireless microphones. Their apprehension about overamplification resulted in controlled output devices. Their concern for the immobility of students resulted in carrier wave and inductance loop amplification. Likewise, future innovations will be based on the teacher's needs.

In conclusion I would like to offer two suggestions regarding the promise of the future in so far as auditory equipment is concerned. First, the discrepancy between what electronics can do and what it has accomplished for the deaf is largely a matter of economics. Frankly, the deaf are unprofitable. Therefore, what is designed for our children will, in many respects, be dependent upon your attitudes. I suspect that few, if any, of you have ever written to a hearing aid company, complaining that a particular model design is unsuitable for small children or, conversely, commending them for a feature which lends itself to children. You should remember that those who design hearing aids and amplifiers are engineers, not teachers; and few understand the complexity of the educational process. Do not restrict your suggestions and complaints to manufacturers, however. The audiological research sections of universities often need reminding that there are basic problems in the education of the deaf that need their attention as well as the theoretical and diagnostic aspects of the handicapped. And finally, remember always that the only auditory trainer in the classroom is you yourself.

THE APPLICATION OF BEHAVIORAL PRINCIPLES TO THE MODIFICATION OF LANGUAGE

Lyle L. Lloyd
Joseph E. Spradlin

There has been a recent upsurge in the discussion and study of language. Several recent behavior theorists (Mowree, 1960; Osgood, 1953; Skinner, 1957; Staats and Staats, 1963) have attempted to develop comprehensive systems of language and the conditions controlling language. The works of these behavior theorists have come under severe criticism from persons with backgrounds in linguistics (e.g., Chomsky, 1959).

These linguists, who collect and analyze samples (the corpus) of language from various language cultures, allege that there are language phenomena which are not explained by behavior theory. They regard these phenomena as rules. Some of these are rules for forming plurals, rules for transformation, and rules for tenses. No behavior theory can be considered adequate which does not allow for the development of behavior as it is found in the community or predicts from the conditions of the community behavior which cannot be found. If it is true that current S-R behavior theory does not account for language as it exists, then the theory must be modified or perhaps even discarded. However, the success of linguists in embarrassing the behavioral theorists should not lead us to prematurely discard the tools of the behavioral scientist. The fact that the linguist can point up phenomena that are problems for the behavior theorist does not, in any way, imply that the linguist has the solution as to how and why language comes about. In other words, linguistics describes language as it is found; however, it does not state the necessary and sufficient conditions for language to occur.

While linguistics may be extremely helpful in establishing certain language goals and the stages or steps in language development, training and treatment procedures must be based on the science of behavior modification or control. In spite of the possible limitations of current behavior theory as a complete system for explaining all of the points of language, behavior theory has many implications for language training and language research.

It is the view of the current speaker that a successful language program is based upon certain assumptions and procedures. Our first assumption is that the goal of a language therapy program is to develop language that is effective in communication with other persons in the community. A child will communicate more adequately with other persons if he shares a common verbal repertoire and that repertoire is under similar controls as that of other members of the community. For example, a child will get along better if he says "There is a cat" when a furry, four legged animal which goes "meow" crosses the floor, than if he emits the same statement while looking into the fish bowl.

Behavior theory offers little aid in determining the language of persons in the community or just how a child's language deviates from the language spoken in the community. From our point of view, this is where the science of linguistics may be most helpful, for linguistics can tell the programer some of the critical aspects of language as it is spoken by persons in the community.

A second assumption regarding the development of a language program is that is is useful to have some acquaintance with the progression of language in normal children. Once again, the assumptions and principles of behavior theory may have little to offer. Perhaps, again, it is well to turn to linguistics to aid in program development. Linguists can tell us some of the stages through which most children move to acquire language. It is recognized that these stages delineated by the linguist may be neither necessary nor the most efficient steps through which language is acquired.

Our language is a relatively inefficient system, and it is conceivable that we have learned our language by a relatively inefficient progression as a result of poor reinforcement schedules and shaping procedures. Nevertheless, linguistics does indicate a sequence with which many children have acquired language. Therefore, these steps may be regarded as the initial or skeletal steps to use in developing a language training program.

A third assumption which seems obvious is that the language development of the child can be modified by a special arrangement of the environment. In other words, training will lead to more adequate language. This is an assumption that is drawn from behavior theory. This assumption is not a major aspect of linguistics; in fact, it may be irrelevant to linguistics. Yet training programs must assume that language can be modified. Not only does the behavior theorist assume that language can be modified, but it also provides principles for behavior modification and suggests procedures for modifying language. The following section of the paper is aimed toward the discussion of such principles.

One of the major principles of behavior theory is that behavior is affected by its consequences. Consequences may either increase the frequency of a class of behavior, or they may decrease the frequency of a class behavior. Consequences which decrease the frequency of a specific type of behavior are classed as punishment.

We are all aware of events which increase the probability of behavior recurring. For example, giving a hungry rat a food pellet when he presses a bar increases the chances he will press the bar again. Giving a child a penny upon request increases the chances that the child will, at a later date under similar circumstances, request a penny; or indicating agreement with the statement of a colleague increases the chances that he will make statements of a similar nature in the future. These are all examples of positive reinforcement. That is, something is presented which increases the probability of the behavior recurring. We are also aware that if a rat which is being shocked presses a bar and it terminates the shock, the rat will be more likely to press the bar the next time he is being shocked; or if a mother's nagging terminates when a child leaves the house, the next time the mother is nagging the likelihood is higher that the child will leave the house. Or if threats of punishment are reduced when a child says "I'm sorry," the frequency of "I'm sorry" responses may increase when the child is threatened with punishment. The termination of an aversive or unpleasant state of affairs is referred to as negative reinforcement.

Various consequences have been employed in language training and in research studies. Most speech therapists and teachers of the deaf have relied heavily upon social consequences to shape and maintain the appropriate verbal behavior of children. That is, they frequently smile and tell the child he has done well after the child has made a correct or improved response. Therapists and teachers have also given stars or allowed the child to engage in some specific pleasant activity after a certain amount of improvement has been made. In some cases, with extremely young or immature children, the therapist or teacher may even give the child juice, pop, or candy to motivate him to work in the speech training situation. It should be cautioned at this point that these events will not be effective if they are not made contingent upon correct responses or improved speech. Two teachers may use the same materials and deliver reinforcement equally often and still have quite different effects on the child. The difference may be that one teacher smiles at the child primarily when he is exhibiting his best behavior, while the other smiles and praises the child even when he is doing poorly. If one wants to improve speech, positive reinforcement should come immediately after the child has engaged in the desired behavior.

One may question whether such social events as smiling and nodding the head will influence behavior; however, a recent study by Yoder (1965) demonstrates that at least under some conditions such events will modify the frequency of verbal behavior. Yoder investigated the effects of an attractive, attentive, smiling female audience presented via television on the verbal behavior of four retarded adolescent boys. The television audience was presented contingent upon vocalization and, in a later condition, was withdrawn contingent upon vocalization. Vocalizations increased dramatically in the reinforcement condition (presentation) and dropped to near zero in the punishment condition (withdrawal). These findings leave little doubt that a female audience presented via television, under careful contingencies, could exercise powerful control over the verbal behavior of retarded adolescent boys. What effect would a live girl have? What effect would such reinforcers have on nonretarded boys?

In addition to smiles and praise, the clinician may use other events as positive reinforcement to increase behavior. For example, Lloyd (1965) and Lindsley (1956) have both reported that the presentation of pictures can be used to increase the frequency of responses. However, as in most experiments investigating the effects of various consequences, Lloyd and Lindsley were reinforcing nonverbal responses.

Rolland has conducted a series of pilot studies using visual reinforcers in an attempt to increase the frequency of the vocalization of profoundly retarded children diagnosed as having "no intelligible speech and no language." In one study (Rolland, 1964) he randomly divided six such profoundly retarded boys (chronological ages ranged from 9.0 to 13 years with a mean age of 10 years) into two equal groups. One group was exposed to the colored slide consequences while the other was exposed to the white light consequence. Presentation of the visual consequence was contingent upon the production of vocal behavior by the subjects. The visual reinforcers (arranged on a Kodak Carousel Projector) were presented each time the subject emitted a vocal response. The number of slides presented (0-35) and time spent in the experimental session (0-10 minutes) were employed to determine the effectiveness of the reinforcement used. The results of this investigation indicated that colored slides will serve as reinforcement for increasing and sustaining vocal behavior of essentially nonvocal mentally retarded children, while there was no evidence which would suggest that white light would serve as positive reinforcement.

The selection of an appropriate consequence is a critical aspect of the language training program. First, the consequences must be reinforcing for the child; not every child can be reinforced by candy, pop, or pats on the back. The clinician must explore and determine what events will reinforce an individual child. Moreover, it is preferable in a training program to use a reinforcer which is convenient and does not interfere with the response to be conditioned. For example, a smile, a nod of the head, or a pat on the back does not interfere with the flow of speech; but either candy or music used as reinforcers may interrupt speech, since eating and listening are difficult to do while speaking. Similarly, the use of visual reinforcers, such as slides, may be undesirable as a reinforcer if the subject changes his verbal behavior according to the stimulus of the slide, rather than relate to a task critical in the language sequence being programed at the time.

The acquisition of a basic speaking repertoire occurs quite early and quite rapidly in the language development of young children. Some behavior theorists have implied that the early verbal repertoires of young infants are developed through differential reinforcement of successive approximations of normal language by the parents and other persons in the child's environment. However, this seems quite unlikely, since behavior shaping usually is a rather artful process involving delivery of reinforcement at precisely the correct moment. A few minutes of observation of parent-child interaction will indicate that the parent is rarely very precise in arranging reinforcement contingencies for infants' verbal behavior. It seems more likely that vocal behavior is initially very likely to occur with infants whether or not it is reinforced by adults in the environment. There is, of course, no doubt that adults do respond to the vocalizations and perhaps increase their frequency. However, while the adult is reinforcing vocalizations, he is also likely to be talking to the child in something that approximates conventional language.

Several persons (Mowrer, 1952; Risley, 1966) have hypothesized that speech occurring at times when the child is being comforted or reinforced plays an important role in the language development of infants. Mowrer (1952) has interpreted initial language in terms of secondary reinforcement. He suggests that the first step involves the mother or caretaker reinforcing the infant by feeding the child, changing wet diapers, holding him, and, in general, comforting him. Since mother usually talks to the child when the child is being cared for, these mother sounds take on secondary reinforcing characteristics for the infant. Then when the infant, while alone, makes sounds that approximate the mother, his own sounds are self-reinforcing. The more nearly the sounds approximate the mother, the greater the reinforcement. In other words, the Mowrer hypothesis postulates a type of "self-shaping."

However, as Risley (1966) has pointed out, the Mowrer hypothesis presents several problems. First, the mere pairing of primary reinforcers with the vocalization of the adult would very likely not establish them as powerful positive reinforcers. Secondary reinforcement established simply by pairing it with primary reinforcement has been demonstrated to have a weak and transitory effect. Moreover, at best the child's vocal noises will be only a crude match of the parents' vocalization and should be even less effective in maintaining behavior than the parents' vocalizations. The Mowrer hypothesis suggests that the child should babble more when he is uncomfortable (e.g., hungry, thirsty, or wet) than when he is comfortable. This is contrary to fact. Risley suggests that while parents do not differentially reinforce specific types of babbling, they do reinforce babbling by jostling, talking to the child, smiling at him, etc. This reinforcement is sufficient to maintain vocalization at a high rate. Now he suggests that under such conditions even relatively weak reinforcers, such as that postulated by Mowrer, may be enough to differentially increase the probability of some response over others.

Certainly, as Bandura and Walters (1963) have pointed out, imitation plays a major role in all learning as a child gets older; and this is most true with regard to language development. Of course, there is much direct reinforcement of imitation. The parent is pleased when the child speaks so as to approximate what has been said to him. Moreover, the young child who repeats an older siblings "a cookie please" may be directly reinforced with a cookie. However, once again imitation seems to occur very early and with little specific training in most children. However, when imitative behavior does not develop easily and early, as is the case with many severely retarded children, it can frequently be established through reinforcement techniques.

Baer, Peterson, and Sherman (1965) selected three profoundly retarded children who had shown no spontaneous imitation during several days of observation. The subjects were trained at their regular meal time and bites of food were used as reinforcement. The sessions were approximately one hour long. The first step in training the children to imitate involved the examiner's raising his hand and then taking the subject's arm and raising it. The subject was then reinforced immediately. After numerous such trials, the subject began to raise his own arm when the examiner raised his. In other words, the child's arm raising had come under stimulus control. Other discriminative operants were established in the same manner. The subject who progressed most in training was taught 130 discriminative operants and showed generalized imitation of new behaviors which were never reinforced. This subject was also taught ten words through imitative and reinforcement techniques.

We have been talking about the establishment of a verbal repertoire and a rather complex type of stimulus control—namely, imitation. However, language programs are frequently geared, not toward establishment of a specific aspect of the repertoire, but toward a shift or extension of stimulus control of already acquired verbal behavior. For example, while extending a child's vocabulary may appear to be establishing new responses, this is rarely the case. Usually the therapist can get the child to make the proper vocal utterance simply by having the child imitate the therapist's utterance. The language therapist is not satisfied that the child can repeat the word key. He will want the child's response "key" to come under the control of a variety of stimulus conditions such as the object key, a picture of the key, and phrases like, "What do we use to unlock a door?" The shift or extension of stimulus control may be done either abruptly or through a technique of gradually fading the initial controlling stimuli. Even in types of articulation therapy, the problem is one of shift in stimulus control.

McLean (1965) illustrated the process of extension of stimulus control of articulation responses both within stimulus modalities and across stimulus modalities. He selected four retarded boys who correctly imitated a given sound when it was presented in isolation or in a word but who misarticulated the same sound when it was evoked by a picture, printed word, or as part of an intraverbal chain. The subjects were trained to imitate the sound in words by reinforcing them with tokens redeemable in pennies (10 for 1) for each correct approximation of the word presented. Once the subject could imitate at least 50 percent of the training words correctly on four successive blocks of ten words, he showed the subjects a picture and then said the word. If the subject imitated the word correctly, he was given a token. This procedure was continued until the subject had made 20 correct responses to the paired auditory and picture stimuli.

Then the pictures were presented without auditory stimulation. The operant rate of correct articulation usually dropped when the auditory stimulus was withdrawn; however, it did not drop to zero. Acquisition of correct articulation responses to the picture was slow but did occur with all four subjects. Then the pictures were paired with printed words and correct responses in the presence of both word and picture stimuli were reinforced. Then the picture stimuli were withdrawn. The subjects quickly learned to articulate correctly the words in response to the printed word. Then the printed words were paired with an intraverbal stimulus. For example, if the subject had initially misarticulated "ch" or "sh," the printed word might be "chalk" and the intraverbal stimulus might be "We write on a blackboard with___________." This shift from printed word control was easily made by all four subjects. Reinforcement was given for each correct response throughout training, with the exception that after criterion had been reached in each phase of training, a probe or pretest was given for the following stimuli to be introduced in the following phase. All subjects learned to correctly articulate the 10 training words to pictures, printed words, and verbal stimuli.

After the final phase of training, tests were made for three types of generalization. First, five new words were introduced with the trained sound in the initial position. The stimuli used to evoke these responses were pictures. There was complete generalization of the correct articulation response to the new picture by three of the four subjects. Second, five pictures representing words with the misarticulated phoneme in the medial position were presented. The subjects did not generalize the phoneme training across position. Third, five pictures were presented which represented words in which the child's initial misarticulation of the trained sound would be correct. For example, if the subject substituted "sh" for "ch" initially, he was presented five pictures in which the "ch" response would be correct. He might be presented pictures of a "ship," "sheep," "shell," "shark," and "shop." When these pictures were presented, the subject overgeneralized, saying "chip," "cheep," "chell," "chark," and "chop."

There has been little experimental work concerning ways of developing complex verbal behavior. However, studies such as those by Berko (1958) and Braine (1963) indicate that the development of complex verbal behavior is not a process of simple chaining as one would find in an animal study. Rather, it appears that complex verbal behavior can occur which has never been reinforced in total, yet which is totally predictable from the structure of conventional language. In this sense the problem seems somewhat analogous to the problems faced in generalized imitation, namely, that a child can generalize a method or pattern of responding which goes beyond any specific behavior chain he has exhibited in the past.

The fact that such generalization or transfer does occur does not tell the conditions necessary for its development. Braine (1963) has conducted a series of studies of children's learning and generalization use of nonsense words and phrases in a simple artificial language. His studies indicated (a) that children did make positional generalizations for words, (b) that they also generalize phrase units according to position, and (c) that the position generalization was very likely based on auditory position effects rather than visual. Finally, Braine's data indicate that the child's learning is impeded if he has to repeat all word orders before selecting the correct one. This is in keeping with notions concerning the detrimental effects of emitting incorrect responses. Braine's study offers a type of hope for training persons in syntax. Perhaps if one trains a child on enough specific instances of a given type of syntactic structure, the child may then be able to generalize that structure to a new situation involving some new elements.

Summary

Our presentation of the implication of behavior theory for language training has been somewhat haphazard. First, we started off by stating our assumptions for training. We assumed that the goal of language training was to establish a verbal repertoire that would allow a child to communicate with other members of his community. We also assumed that he could communicate best if his own verbal repertoire most closely approximates that of other persons in the community. We also made the assumption that children can be trained under the proper conditions. Finally, we have tried to present some implications for training drawn from language research. We discussed reinforcement, the role of imitation in language development, the extension of stimulus control and complex verbal behavior. If in our discussion of imitation and complex verbal behavior we have deviated from a simple S-R type of theory, it is only because the facts about language seem to demand it.

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LONGITUDINAL STUDY OF PERFORMANCE OF CHILDHOOD APHASICS ON MENTAL ABILITY TESTS

Don W. McBride

Intelligence may be defined as the ability to learn and function in one's environment. It is assumed that intelligence or mental abilities tests measure samples of this. For comparative purposes, this sampling or testing must be conducted under uniform or standardized conditions, including uniform materials and instructions.

The measurement of the intellectual potential is called intelligence quotient (IQ), derived by dividing the mental age by the chronological age. It is expressed by the following formula: $IQ = \frac{MA}{CA} \times 100$. This measurement may indicate three things: (a) the rate at which a person is developing mentally, (b) the amount of mental growth attained as a percentage of the attained chronological age, and (c) an estimate of the maximum intellectual level at which a person may ultimately be expected to perform. A person's potential is not expected to change from one testing situation to another. However, because of imperfect validity and reliability of tests, test results are expected to vary. Some of the reasons for the variation in IQ test scores are as follows:

1. The inability of any test to sample all of the dimensions of intelligence at all of the age levels in a single testing session.
2. One person's pattern of growth or development curve in the various factors of intelligence may be quite different from another's. Therefore, at one level a test may favor one individual, and at another age level the same test may place him at a disadvantage in comparison to another.
3. The rate of growth in children is not smooth. There are irregular periods of growth spurts followed by plateaus.
4. Due to fears, inhibitions, and low frustration tolerance, some persons are unable to function at their best around unfamiliar persons and in unfamiliar surroundings. As they become able to control these feelings, their test performance should improve. On the other hand, some persons are motivated to perform well in the presence of unfamiliar persons. They may feel less inhibited or resistant than they would within the familiar environment. Some persons find it easier to control themselves and to produce at a higher level when asked to do so by an unfamiliar person.
5. One examiner's approach or personality may favor an examinee, while another's may place him at a disadvantage in terms of his test performance.

Problem

In the testing of aphasoid children in an habilitative center for communicative disorders, it was noted that in some cases there were rather wide variations, both positive and negative, in IQ scores between testing sessions. The question was raised as to whether this was characteristic of a certain period in their training or of a certain chronological age or mental age level. Although some studies have shown little or no improvement in IQ scores during special training, it was felt that in this setting there was a trend in a positive direction, at least up to preadolescence.

Anastasi (1954) and Clarke and Clarke (1958) both contend that the IQ increases as a result of a positive environment. However, Lawson (1938) found no significant increases in IQ in children who particpated in a rich, vital, school curriculum. Bradway, Thompson, and Craven (1958), in their longitudinal study of children from preschool age to beyond age 25, indicate no IQ change up to adolescence, but note a 10 point increase in IQ after age 25.

Coleman and Newlyn (1958) on a test-retest reliability study of intelligence test results over a period of one year, using retarded children, obtain a correlation coefficient of .92, indicating little change.

Holowinsky (1962) reports that, in a study of institutionalized mentally defectives over a period of three decades, there was no significant change in IQ. In fact, in those cases whose IQ was below 47, a decrease in IQ was more frequent.

Procedure

The subjects for this study consisted of all the children and adolescents in training at the Institute of Logopedics who were classified as childhood aphasics by speech examiners certified by the American Speech and Hearing Associations.

This group included 130 males and 49 females, making a total of 177 in the first two testing sessions. The first of the tests was administered prior to entering training. By the time of the sixth testing session, this number had decreased to 29 because of dismissals. The average age at the time of the first test was 13 years and 8 months. Therefore, an average of 6 years and 3 months of training was received by the subjects between the first and the sixth test.

It was felt necessary to employ a nonverbal test of mental ability because of varying degrees of expressive and receptive speech disability in the subjects. The Leiter International Performance Scale (LIPS) was chosen because it does not require any verbal communication between one subject and the examiner and because it has been standardized down to the two year level.

Leiter's (1948) instructions for administering and scoring the scale were used, except that five points were not added to the IQ scores, which he indicated should be done in comparing these scores with other intelligence scores. When a child was unable to perform on the LIPS, he was given the opportunity to perform on the Stanford-Binet Scale, form L-M. The tests were administered by four male examiners.

The author determined the intercorrelation of examiners on a test-retest basis including the same subjects. Test data on 252 subjects were used. The results are given in Table 1.

Table 1

Intercorrelation of Test Results of Four Examiners Using the
Leiter International Performance Scale
(N is shown in parentheses)

Testers	1	2	3
2	.93 (15)		
3	.87 (54)	.93 (12)	
4	.85 (134)	.90 (18)	.80 (19)

All of the correlation coefficients in Table 1 are .80 or higher and are significant at the .001 level.

Children able to perform on either the LIPS or the Binet Scale were considered testable. Those unable to perform on these scales were considered untestable.

Results

The test results were analyzed according to the following groupings:

1. Those who were testable at the time of the first testing. After the second testing, the number in this group became smaller because of dismissals.

Table 2

Children Initially Testable
Mean IQ and Percentage of Total

Testing	N	Mean IQ	Total Number of Children	Percent of Total Initially Testable
1	117	63	177	65
2	117	63	177	
3	64	68	112	
4	47	62	81	
5	28	53	53	
6	17	57	29	

2. Those who were testable at the time of the first testing and those who became testable in subsequent testings. On the second testing, the number in this group was increased because many became testable. After this, however, the number became smaller because of dismissals. The percent testable steadily increased, however, from 65 on the first testing to 100 on the fifth and sixth testings. This is shown in Table 3.

Table 3

All Children Testable at Each Testing
Mean Chronological and Mental Ages and Mean IQ
Percentage Testable

Testing	N	Mean CA	Mean MA	Mean IQ	Percent of Total Testable	Total Number of Children
1	117	7-5	4-6	62	65	177
2	155	8-3	4-10	61	88	177
3	105	9-6	5-6	61	93	112
4	77	10-11	5-9	58	94	81
5	52	12-5	5-11	54	100	53
6	29	13-8	6-7	59	100	29

3. Those who were able to perform on the Leiter Scale at the time of the first testing. This group became smaller after the second testing because of dismissals. These are shown in Table 4.

Table 4

Those Able To Perform on Leiter Scale at First Testing
Mean Chronological and Mental Ages and Mean IQ
Percentage of Total Number of Children

Testing	N	Mean CA	Mean MA	Mean IQ	Percentage of Total
1	77	8-3	5-3	67	44
2	77	9-3	5-10	68	
3	34	10-5	6-11	73	
4	21	11-3	7-2	68	
5	9	12-7	7-2	61	
6	5	12-5	7-8	65	

4. Those able to perform on the LIPS on the first test and those who later were able to perform on this scale. This group was larger for the second testing and then became smaller because of dismissals. This is shown in Table 5.

Table 5

Children Able To Perform on Leiter Scale on Each Testing
Mean Chronological and Mental Ages and Mean IQ
Percentage of Total Testables

Testing	N	Mean CA	Mean MA	Mean IQ	Total Number of Testables	Percent of Total
1	77	8-3	5-3	67	117	60
2	124	8-6	5-3	66	155	80
3	91	9-7	5-9	65	105	87
4	70	11-0	6-2	61	77	92
5	48	12-8	6-3	54	53	90
6	29	13-8	6-7	58	29	100

5. Those who were able to perform on the Binet only at the time of the first testing. This group remained the same in number for the second testing and then became smaller with each subsequent testing because of dismissals. This is shown in Table 6.

Table 6

Children Unable To Perform on Leiter Initially but Able to Perform on Binet
Mean Chronological and Mental Ages and Mean IQ

Testing	N	Mean CA	Mean MA	Mean IQ
1	40	5-9	3-1	57
2	40	7-1	3-11	55
3	31	9-2	5-5	64
4	27	11-0	5-9	60
5	18	12-7	6-3	56
6	13	14-3	6-6	54

6. Those able to perform only on the Binet Scale. This group became smaller because of movement into group 4 and because of dismissals. This is shown in Table 7.

Table 7

Children Not Able To Take Leiter on Any Testing But Able To Take Binet
Mean Chronological and Mental Ages and Mean IQ

Testing	N	Mean CA	Mean MA	Mean IQ
1	40	5-9	3-1	54
2	28	7-10	3-4	48
3	14	8-11	3-10	43
4	7	11-4	2-[illegible]	20
5	4	10-2	2-2	21
6	0	0	0	0

7. Those who were untestable at the time of the first testing. After the second testing this group became smaller because of the dismissals and because many became testable. At the time of the first testing, these children averaged one year and eight months younger than those who were testable. This is shown in Table 8. However, by the fourth testing these children were of the same average age as the testable children. (See Table 3.)

Table 8

Children Untestable at the Time of the First Testing
Mean Chronological Age and Mean IQ

Testing	N	Mean CA	Mean IQ
1	62	5-10	
2	62	7-4	59
3	46	9-0	60
4	33	10-11	56
5	25	12-7	46
6	11	13-7	54

8. Those who were untestable at the time of the first testing and who were untestable on the subsequent testings. This is shown in Table 9.

In an attempt to account for the drop in average IQ after the third testing in group 1, a comparison was made between the mean IQ's of those who were dismissed and those who remained. This is shown in Table 10.

At the time of their first examination, only 117 of the total 177, or 65 percent, were able to perform on any formal test. (See Table 1.) There was a gradual increase in percentage testable until, by the time of their fifth examination five years later, 53 or 100 percent of those cases who were still in training were able to perform on a standardized test. This is particularly significant in view of the fact that the less severely language involved cases tend to terminate earlier than others.

Table 9

Children Untestable at First Test and Who Remained Untestable
Mean Chronological Age
Estimated Mean Mental Age and Mean IQ
Percentage of Total

Testing	N	Mean CA	Estimated Mean MA	Estimated Mean IQ	Total	Percentage of Total
1	66	5-9	3-0	52	177	34
2	22	8-0	3-3	41	177	[illegible]
3	7	10-6	2-10	27	112	06
4	4	12-6	2-6	20	81	05
5	0	0	0	0	53	0
6	0	0	0	0	29	0

Table 10

Comparison of IQ's of Those Who Were Dismissed and Those
Who Remained in Training in Group 1

Testing	Dismissed after Second Test N=53	Dismissed after Third Test N=17	Dismissed after Fourth Test N=19	Dismissed after Fifth Test N=11	Remained after Fifth Test N=17
1	63	71	61	63	58
2	63	76	62	64	60
3		80	65	62	64
4			62	61	60
5				51	59
6					57

The mean IQ of testable aphasoid children held relatively steady within the educable range of mental ability throughout.

Even though the Leiter International Performance Scale was presented to every one of the 117 testable children, only 77, or 60 percent, were able to perform on the LIPS at the time of the first examination (see Table 3). By the third testing, an average of one year and four months later, the percentage of children able to perform on the LIPS had reached a level of 87 percent. By the sixth testing, all testable aphasoid children were able to perform on the LIPS.

The mean estimated IQ of the nontestable children showed a notable decline from the low educable range into the custodial range (see Table 9). However, by the time of the fifth testing, even those children in the custodial range were able to perform formally on a standardized test because of their growth in mental age.

On the first test the nontestable children were an average of one year and eight months younger than the testable ones. At the second testing they were about the same, and by the third testing, the nontestable had a mean chronological age of one year higher than the testable children. They had increased this difference by seven months by the time of the fourth testing.

Discussion

This paper is concerned with two questions: (a) testability of aphasic children, and (b) longitudinal changes in IQ scores in a childhood aphasic population.

It was found in this study that out of 177 aphasoid subjects with a mean chronological age of seven years and six months, only 117 or 65 percent were testable, i.e., able to perform on a standardized test in their initial contact with the psychometrist. The mean chronological age of the testable was one year and six months higher than that of the nontestable. By the time of the second testing an average of one year later, 88 percent were testable. Four years later, at the time of the fifth testing, all members of this group still on training were testable. However, the number of subjects in this length of time had reduced to 33 percent or 53 in number. Of the 117 testable children mentioned above only 77 or 60 percent were able to perform on the Leiter International Performance Scale at the time of the initial examination. The remainder were able to perform on the Stanford-Binet Scale.

This would suggest that although both the LIPS and the Binet Scale have been standardized at the two year level, the items on the LIPS are more difficult and more demanding as a whole, at least for the childhood aphasic population. It was noted that those unable to perform on the LIPS rarely passed the verbal items on the Binet Scale. This suggests that the integrative ability needed to pass the items on the Leiter Scale is related to that needed to pass the verbal items on the Binet Scale.

The average mental age for those able to perform on the Leiter Scale was about two years higher than for those unable to perform on it on the first three testings and about four years higher on the fourth and fifth testings. This would suggest that among aphasic children, on the average, one must have a mental age of more than three years and ten months, regardless of chronological age, in order to perform on the LIPS.

It was also noted, that the mean IQ score in the initially testable group did not drop below the educable range, while those of the nontestable group (group 3) and Binet only group (group 6) did not achieve mean IQ scores above the trainable range except on the first testing. This indicates that a number of nontestable and Binet only subjects moved in terms of testable IQ from the trainable into educable range of mental ability after a period of training.

Among aphasic subjects who were initially nontestable there was noted a trend toward improvement in IQ scores. Children able to perform on the LIPS, at the time of their performance, attained an average IQ within the educable range. Their test pattern is similar to that of all testable aphasic children.

Those able to perform on the Binet only went, on an average, from the low educable range on the first test progressively downward into the custodial range on the fourth and fifth testings. This is a pattern similar to that shown by the nontestable aphasic children.

When the t test for significant difference between means was applied, it was found that the progressive drop in the mean estimated IQ's of the nontestable group (Table 9) and in the mean IQ's of the group able to perform on the Binet Scale only (Table 7) is statistically significant. On the other hand, in the testable groups (Tables 2 and 3) and in the group able to perform on the LIPS (Table 4), the difference in means from one testing to another is not statistically significant, although there is a slight trend upward to the third testing at a mean age of nine years and six months and a trend downward to the fifth testing or to a mean age of 12 years and 5 months and 12 years and 8 months respectively.

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COUNSELING PARENTS OF PRESCHOOL HEARING IMPAIRED CHILDREN

Winifred Nies Northcott

Are there crucial differences between the needs of a preschool deaf child and his hearing peers? Who provides the impetus for beginning perceptive and expressive language? How early should a deaf child be sent off to school? Are the parents of a deaf child unique? What are their special responsibilities?

The parents of a hearing child consider his preschool education their natural responsibility and privilege. It is carried on quite enjoyably (most days) in the home or through parent directed experiences in the neighborhood. Education is family centered during these preprimary years prior to a full time learning program in a formal school, and it embraces every aspect of learning that occurs during the child's waking hours.

In the instance of the hearing impaired child (whose hearing loss carries the assumption of considerable language retardation), the trend is toward an increasingly early entrance age into a formal school for the deaf. The specified program of auditory training, language development, and speechreading is too often word centered, rather than concept centered, and watered down to the level of three and four year olds who are still at the play stage of learning.

When a child is removed prematurely from the home, there is an interruption of the cyclic quality in child development and a serious loss of opportunity for parent child interaction. On the other hand, when parents provide daily supportive firmness in meeting their child's needs by responding to them with appropriate timing and intensity, he gains confidence and a sense of accomplishment. These qualities have survival value for later character development in terms of self-control, trust, competence, and a feeling of self-worthiness (Erikson, 1963).

Readiness for school is a state of mind, not a degree of hearing acuity. It is a single standard, a set of behavioral and intellectual requirements which the deaf child must also meet. It is revealed in creative thought, by the way a child brings his intellectual skills to bear in problem solving. It involves self-reliance, inventiveness, and a sensitivity to the cues and clues in his environment. These are the behavior benchmarks of a well adjusted child who runs toward life with confidence and humor. At this stage of development, a child is ready for schooling away from home and family.

In the instance of a preprimary deaf child, one additional dimension of maturity is required. Entrance requirements should include the daily wearing of a hearing aid with confidence and the ability to use his voice spontaneously and purposively, monitoring its volume, in communication with others. As for the deaf child's position along the continuum of linguistic competence upon admission to school, it will vary from a minimum of comprehension and expression of thought to an extensive speechreading vocabulary and some expressive language in the form of telegraphic speech. Imperfect speech patterns? Very! Confident about life? Very!

Preprimary education is essential for every hearing impaired child. The home is the natural center of learning and his parents are his teachers. Vital discoveries emerging from current research in language acquisition and cognition apply directly to an understanding of the learning process during the deaf child's preschool years. (a) The transitory capacity for language acquisition reaches a peak during a critical thirty month period from age one and a half to four, and thereafter declines. (b) All children have an inborn predisposition to acquire language, and part of that innate knowledge is an understanding of basic grammatical relations which parental speech reinforces. The deaf child's linguistic competence is unimpaired. His linguistic performance depends upon the quality of the parental speech directed to him (McNeill, 1966). (c). Language impairment does not affect a deaf child's capacity for cognitive development nor his ability to engage in reasoning and use imagination. Intellectual ability exists independently of language competence, and cognition develops in proportion to the richness of a child's environment (Furth, 1966).

During the brief preschool years, any child, whether hearing or deaf, who remains at home acquires learned patterns of behavior, of which language is only one aspect, from interactions with his family. Through a trial and error approach to learning, his clothing, speech patterns, attitudes, and even his pictorial art combine to form a particular character structure of personality which is well defined by the age of six. His distinctive behavior characteristics reveal the quality of his total interactions and experience during the previous home guided, family oriented years. When a hearing child trots off to school on the first day, his parents unconsciously reveal his molarity or life style when they make such observations as "I'll miss my little helper" or "Wait 'til the teacher sees that scab from his vaccination in Show and Tell."

The development of language is inextricably entwined around a young child's emerging personality, as molded by family relationships. It is in the home, for which there is no substitute, that events occur which enable a deaf child to link speech with experience, which gives it meaning. Emphasis upon nouns? Hardly. Experiences that would occur in school? Hardly. The parents' conversation makes use of the child's connection with his daily environment. His bath, the milkman's arrival, caring for his dog, a hot stove, a lost toy, putting away groceries, big brother's illness—these are events that involve the operation of all his mental processes and that give purpose to communication.

All children progress through the babbling stage, occurring in the first year of life, when they utter every sound known to speech. But the deaf child, lacking satisfaction from any auditory feedback, becomes silent. He will not advance in linguistic performance without specific encouragement.

Language will become a vital force in the life of the preprimary deaf child if his parents, waiting first for a glance, talk to him in brief sentences about what is happening at the moment. Although the child lacks comprehension at first, play circumstances or his reaction to the situation at hand make clear to chim the meaning of the language in use. Since the conversation centers around his own experiences, feelings, and needs as they occur, he is stimulated to watch and to listen for an ever increasing span of attention (Groht, 1958).

As a mother continues to talk to her child, there is a gradual process of auditory, visual, and kinesthetic feedback. The fragments of his residual hearing are stimulated and utilized to the maximum by the hearing aid worn daily. The toddler develops a kinesthetic awareness of his own speech patterns. In turn, this reinforces his auditory attention span and intensifies his habit of watching faces to supplement his imperfect auditory clues. This multisensory involvement encourages a deaf child to use his voice spontaneously, to think in terms of speech, and to internalize it into meaningful concepts (Morkovin, 1960). This is the beginning of active thought patterns in a deaf child, which enable him to draw inferences from the richness of his inner language, classify them into meaningful categories, and engage in abstract thinking. Natural conversation is parental use of a child's native curiosity at its exciting best.

Parent education and counseling is a necessary corollary to the education of a preschool deaf child in his home. A team teaching approach provides ideal conditions for the young deaf child's optimum development. An educational counselor directs the parents who begin to gain confidence in talking naturally to their child about his ego centered activities in the home. In turn, he builds a foundation of inner language by the daily association of words with his experiences, through multisensory stimulation. Motivation for speechreading and later expressive language is insured.

The critical need for parent counseling and guidance is at the moment of impact, when the diagnosis of deafness is first made and the child has been fitted with a hearing aid following a complete physical, otological, and audiological evaluation. Uncertainty is a condition that parents tolerate poorly. It can be eased by a prompt visit to a counselor who will encourage mobilization of vital energies for future responsibilities. In this comfortable climate, parents can express their misery and inner bleakness, receiving in return specific guidance and some homework to do before the next visit. This is a valuable kind of sympathy, defined as two hearts tugging at one load. And as Dr. Alathena Smith, staff psychologist at the John Tracy Clinic, wisely observed, "Getting into motion takes the E out of emotion."

The structured guidance of parents is available in many forms. There is the splendid correspondence course of the Tracy Clinic in California, which is available without charge to parents of deaf preschoolers around the world. There are centers for complete family instruction, such as the Minneapolis Hearing Society. Here one finds individual and group counseling of parents, a nursery school for profoundly deaf preschoolers, and supplementary tutorial rooms where a teacher of the deaf includes a parent as observer and participant in the child's individual auditory training and language lesson. Hard of hearing children are directed to the nursery school for hearing children operating nearest their home, and they come to the Society for individual lessons in auditory training and speech correction.

Hopefully, there will be an extension in my own state of Minnesota of an exciting pilot project established by Crippled Children Services in the Department of Public Welfare, the first regional guidance clinic for the parents of preschool deaf children, with which I have been associated for the past three years as itinerant teacher. And finally, but still in the future, there is the dream of increasing numbers of itinerant teachers who will visit the home for parent counseling, demonstration work and first hand observation of the emotional and social climate therein.

The ideal counselor is a mature individual capable of further growth. Preparation as a teacher of the deaf is a desirable professional requirement, with attendant knowledge of language and speech development in hearing children and the pervasive influence of deafness upon every phase of child growth. An understanding of the behavioral characteristics of preschool children is important. The philosophical cornerstone is a thorough understanding of and belief in the effectiveness of the natural language method of encouraging comprehension of language and spontaneous speech in hearing impaired youngsters.

A word of caution! An educational counselor enters a danger zone when she assumes an interpersonal relationship with a parent which is properly reserved for the psychologist, without possessing knowledge of personality theories, convictions, professional vocabulary, or the ego strength to be of genuine assistance to a disturbed parent.

How does a parent encourage a deaf child to talk if he is not yet aware he must look up at faces or that lips convey meaning? His hearing aid is still a toy that is yanked out of the ear at unpredictable moments. Yet he must wear it daily for a kinesthetic feeling of the rhythm, pitch, and inflection of language that makes speech meaningful, and he will talk only after he has begun to listen and to watch. The deaf toddler is already learning and expressing himself in metacommunication, however, through his gestures, stance, facial expression, and muscle tone.

There are several crucial ground rules for parents to follow. (a) Assume the appropriate position according to whether the child is listening or watching. Eighteen inches from the ear is an ideal listening distance, or three feet away for speech reading. (b) Speak in a normal tone of voice, always in full sentences, at a height where the child can see the lips clearly. (c) Express complete thoughts, not merely identify objects, when talking. (d) Relate comments to the child's concrete experience of the moment. (e) Wait until the child looks at you before speaking. (f) Wait for natural times of interaction; don't touch the child to insist he look up.

As an illustration, mother comes into the yard and seeing her shadow, the child looks up. "Let's pick some flowers," she says, then glances at the flower bed and starts picking. When the child has a handful and looks up again, mother says, "Put them in this bowl," holding it toward him. When they are in the kitchen, mother waits for another glance, then says, "Fill the bowl with water" and looks toward the faucet after she has completed her sentence. This involves the ideal combination of listening and looking, plus the clues given by mother's eye movements. Actually, the child will probably rush into the house ahead of mother and attempt to fill the bowl with water all by himself. She merely shrugs her shoulders mentally and waits for the next natural opportunity to say something to him.

As a child finishes his bath, mother waits for him to look at her, then says, "Rub hard" and hands him a towel. When he gives mother his empty plate, she directs, "Put it on the counter" and looks toward it. The normal phrase, a wide variety of language forms, the spontaneous expression at the appropriate moment—these encourage language growth in a young deaf child. As the line from Oklahoma explains, it is really "Doin' what comes naturally."

It takes hundreds of glances and a few weeks to develop a connection in a deaf child's mind between experiences and speech. The social relationship is established first. The child begins to realize that when interesting things occur, something happens on mother's face. Her lips move, her eyes move, her facial expression changes. These are clues a youngster can translate into meaning, into communication. Now he is truly "soaking up" speech and associating auditory symbols with experience, which is the beginning of the development of inner language.

A deaf infant lying in his crib is exposed to the same type of direct speech with appropriate content. "Shake your rattle," says mother, and she hands it to him. Or meeting his steady gaze, she says, "I'll pick you up" and reaches down. "Here comes Daddy," and mother turns to look at her husband as he enters the child's range of vision.

This incidental, casual parent chatter is not sufficient to stimulate growth of a definite speechreading vocabulary in a deaf child. In addition, a parent is counseled to select three or four phrases covering daily situations for a beginning of specific comprehension of spoken thoughts, e.g., "Let's go outside," "Time for your bath," "Put your toys away," and "Daddy's coming." The wording always remains the same until the child shows definite understanding without situational clues. Then the word content can be varied for further depth of meaning and additional sentences introduced.

Mrs. Thomas Watson, of Manchester, England, conducted an exciting seminar in parent counseling at the University of Minnesota in 1961. She used the analogy that "understanding is a series of circles for the preschool deaf child." Circle I consists of the words and phrases a child understands fully without eye clues. They comprise his stable speech reading vocabulary. The child is playing in his bedroom and mother appears. "Time for supper," she says, and he runs to the kitchen. From this circle of comprehension, a deaf child's first spoken word will come. "Maw, maw," he might say as he holds out his empty plate. Mother is counseled to expand his telegraphic speech and wait for his glance to reply, "I'll give you more cake." "Careful—hurt," said Paul as he and his mother walked down icy steps. "pree," says a little girl, patting her new dress. "It's a very pretty dress," mother answers. When a deaf child is using speech in one or two word sentences for genuine communication in a purposive way, his readiness for school is apparent. This is the time for him to enter a school away from home and to be taught by a skilled teacher.

Circle II consists of the phrases a child understands when the situation at hand makes the meaning clear. Daddy has driven up and the car door is open. To the child on the swing, mother says, "Go for a ride with Daddy" and looks at the car. The language involved is not yet understood, but the child should respond. If he doesn't, mother takes his hand. When he looks up, she says, "Let's go for a ride with Daddy" and they walk toward the car.

Circle III is the perimeter of language, including any parental speech where the child's interest is high but there is no understanding—"I think you're sleepy." "It's cold outside." "You're so slow." Through the process of sorting out his experiences and the conversation that accompanies them, a deaf child moves into the stage of awareness that speech has meaning. More of the content of Circle III is transferred into the area of understanding through clues and eventually is incorporated into genuine comprehension. A child is exposed to the referential aspect of language through parental conversation about his experiences. In school, the sequential order of syntax is taught through reading and writing.

A counselor helps parents to understand that comprehension of rich and varied conversation determines a deaf child's ultimate level of competence in reading and writing. When a parent realizes that reading is a matter of superimposing the read word upon the auditory word and calling upon inner language to give it meaning, she is eager to use such phrases as "What do you think?...The funniest thing happened....I was so surprised" in casual conversation. A few years later, a profoundly deaf child who has been exposed daily to this abstract language, will appropriately use words (imperfectly articulated) such as "miserable," "brave," "perhaps," "understand," "pale," and "joke" long before they are encountered in a book.

In a similar way, auditory training begins with the child's exposure to mother's voice close to his ear. Gradually, the fragments of his residual hearing are trained to recognize various tempos of music and rhythmic cadence and to identify a few or many of the household and outdoor sounds of ordinary life. Listening satisfaction will lead the young deaf child to wear his hearing aid daily for an ever increasing period of time.

Formal lessons? No. Time out from normal activities? No. It is the quality of mother-child interaction that speeds the toddler's association of words and meaning and his retention and classification of mental images for later speech. Meanwhile, little girls love to be miniature adults—"You dust for awhile." Little boys follow their fathers around—"Want to pound a nail?" This is normal conversation in the home, and all conditions favoring learning are at hand. There is the parent, whose face is life itself to a deaf child, and there is his own vivid impression of experiences in which he is deeply interested. There is the association of speech with concepts he already knows through previous experience, and, above all, there are the countless repetitions of meaningful language day after day. "All systems are go" for optimum language development.

Mother's notebook is as important as her watch during these precious preschool years, for a counselor expects progress reports on every facet of the deaf child's development. Thus a parent makes brief notations with dates on various pages headed: "Awareness of Sound"; "Attention Span" (whether the child is beginning to watch faces, and for an average of _____ words at a time; "Use of Voice" (at first, perhaps only a crooning sound while rocking a doll, or "grinding gears" as a boy plays with trucks). Equally important is the progress reported in areas of "Self-Help," "Specific Speechreading," "Independent Play," "Attempts to Say," "Imagination," and "Motor Coordination." A parent's report on all these facets of child growth forms the basis of the counselor's specific objectives for a parent to carry out before their next meeting.

The current age of a deaf child and age of onset of deafness and the degree of hearing impairment and his level of maturity serve as guidelines for determining the amount of individual counseling given parents before a child is ready for school away from home. The interval between counseling sessions is gradually extended as the parent's progress reports prove their understanding and successful application of the natural language method.

Parents and counselor do care what a preschool deaf child attempts to say, but they are not concerned with the preciseness of his articulation. The formal refinement of speech elements is left to skilled teachers after the child enters school. Parents are guided toward establishing correct speech attitudes in their preschooler, which leads to extensive speechreading vocabulary and normal voice quality. A child is encouraged to instinctively and fearlessly use what inadequate telegraphic speech he knows. "Ot," says the child, and mother replies, "Yes, it's hot. Be careful."

There are many other educational concerns of the counselor. What of brothers and sisters in the family? Were they robbed of the play stage of learning when the deaf baby arrived, and are they reverting to a more immature level of functioning by way of protest? Is a parent capable of using diversionary tactics in channeling and redirecting temper tantrums? What is father's role in his child's language and character growth? Educational counseling runs the gamut from the preschooler's social and emotional needs to guidance that will insure his growth in perceptive and expressive language. Attention to sleeping habits (I think of Charlie Brown's "happiness is a night light") and fairness and consistency in discipline also come under scrutiny. Finally, the counselor has a concern for parents as individuals and their need to belong to each other for a few hours away from the children (Northcott, 1962).

When parents can assess their deaf child realistically and begin to enjoy him, we can predict his ultimate success in school. For language performance is more dependent upon wholesome family interaction during the preschool years than upon the degree of hearing impairment.

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GENERATING LANGUAGE DEVELOPMENT LESSONS FROM THEORETICAL BASES

James O. Smith

After early training as a speech clinician, it became my responsibility to serve large numbers of primary children in the public schools. Much of this work appeared to be the development of phonemes and their consequent carryover in the speech of young children who had omitted, distorted, or substituted sounds. Several years later, chance and further training directed that my assignment be to a special school for orthopedically handicapped children. Here a quite different population presented itself. Those assigned for therapy were often cerebral palsied children, and many of these children tested on conventional individual tests of intelligence as slow learning or educable mentally retarded. Here the additional emphases of sustained vocalization, enhanced diadokokinetic rate, better head position, coupled with articulatory work, still left much to be desired. At this point, the realization began to intrude on my training and performance that the young cerebral palsied child, of restricted mobility and experiential deprivation, often has delayed language development. My feeling was that these children needed to see more, hear more, associate more, talk more, and gesture more than was possible in the half hour sessions called speech therapy. If bilabials could be better approximated and more rapidly produced, to what avail if the child had few meaningful concepts that required words necessitating bilabials? What purposes were served in carryover work when a child used a newly gained sound in echoed words that he had no meaning for.

This experience, these hunches, then led me to a different expenditure of time with the cerebral palsied population. First was work with groups and, consequently, more time spent with the children. The emphasis was more on communication, understanding, and talking to and with children; but emphasis upon speech sound was still reflected. This approach (not completely described here) was called speech improvement and continued to center a great deal of emphasis on oral speech and appropriate use of phonemes within words.

Later experiences with the mentally retarded convinced me more and more that my time needed to be spent developing language in the more general sense. Here the earlier emphasis on speech improvement and correctness of certain sounds, with the focus more on expression, seemed less important than developing better reception (auditory and visual), associations, and expression. Here I found myself trying to develop lesson plans that I might use with mentally retarded children to stimulate such a broad and general development of language. This approach, based on past experiences, was intuitive. There was little objective evidence that we were successful, but the feeling was there that this kind of general approach to language development was more productive than past efforts we had labeled speech therapy or speech improvement. For four years (1956-1960) this became our approach for young mentally retarded children—presenting them with many more visual and auditory stimuli, seeking to develop vocabulary, developing many more associations, and encouraging a great deal more expression, with premium placed on quantity of expression, not correctness of such as judged by phonetic analysis.

Beginning in 1960-61, after exposure to the Illinois Test of Psycholinguistic Abilities (Kirk and McCarthy, 1961) and the theoretical model of Osgood (1957a; 1957b), a new idea emerged for the planning of language development lessons. The Illinois researchers had derived their ideas for a clinical model and test from Osgood's work. Such a comprehensive theoretical model also appeared most useful for generating a wider variety of language development lessons. Just as one could plan test items that appeared to sample decoding, it was possible to develop many similar lessons that require children to perform this psycholinguistic process. Just as test items were constructed to measure auditory input and vocal output, it was possible to develop numerous activities that gave the child opportunities to develop these channels of communication. Just as tests were developed to assess automatic sequential and representational levels of organization, it appeared possible to develop items that appeared, at best, to stimulate practice and participation in similar ways. The Osgood-ITPA model at the representational level tested only auditory vocal association and visual motor association, while in generating language development work, it was felt necessary to add auditory motor and visual vocal associations.

Let me say here that products of this kind of approach to language development lesson planning are available as more than 100 specific activities in 33 daily lessons published as an appendix in an available monograph referred to in the list of references (Smith, 1962a). These lessons were developed as an experimental treatment for young educable mentally retarded children. The results of such an experiment with language development and a more comprehensive treatment of the language program are also readily available (Smith, 1962b). These efforts, published during 1962, represented a first approximation of what it was thought language development work ought to be—lessons generated from a speech improvement background, guided by intuition, and influenced by a theoretical model.

Later attention to Guilford's (1959) structure of the intellect, with its operations, products, and contents, evoked renewed interest in lesson planning. As Guilford and his associates discovered more and more facets of the intellect, it became of very real concern that lessons planned to develop language from the Osgood-ITPA base did not include activities which seemed to stimulate all of these many kinds of intellectual activities, did not deal with these broad classes of information or pay enough attention to the forms that information takes in the person's processing of it (Guilford and Hoepfner, 1963). A concrete example here would be the development of lessons to specifically enhance the retarded child's abilities to produce divergently. A review of earlier language development lessons found few, if any, exercises that caused children to generate information from given information where the emphasis was on variety and quantity of output. Interest on this point led Rouse (1965) to develop an experimental program to stimulate divergent production of young retardates. Pretests and posttests using Torrance's Minnesota Tests of Creative Thinking indicate that it is possible to develop lessons to enhance this operation of the intellect.

With the use of the combined bases of the ITPA-Osgood model and the structure of intellect factors, far greater numbers of language activities were developed. This work, the product of many persons, was pulled together, in many instances rewritten, and edited by Dunn and Smith (1964). Here now were 200 daily lessons averaging three activities each (or approximately 600 language development activities) published as a manual for teachers to use in an experimental setting. This second approximation, called the experimental primary edition of the Peabody Language Development Kit, was tested in research during the 1964-65 school year in the greater Nashvill area and the Lawrence, Kansas, public schools as well. As a consequence of these studies, feedback from teachers, and analyses of pretest and posttest profiles, further changes were made in the program which then as a third approximation emerged commercially during September of 1965 as Peabody Language Development Kits, Level I (Dunn and Smith, 1965).

Further lessons (some 180) have been developed as Peabody Language Development Kit, Level II, and this experimental edition is being used during the 1965-66 school year as a nine month language development program for culturally disadvantaged second grade children.

Level III, an experimental program for continuing language develop work with culturally disadvantaged eight to nine year olds, is currently being created. Here, again, the structure of intellect model (Guilford and Hoepfner, 1963) has served us well. Now we have begun to write specific lessons which appear to relate various operations to each content and product category. Let me give an example of such an activity. Given divergent production, semantic content, and system as a product, one might provide two or three letters of the alphabet for the children. They are then instructed to think of words that begin with those letters; i.e., given w_____f_____, children provide what for, wild fire, wet fish, we fight, etc. Guilford suggests this item as a test of expressional fluency.

Another example of an activity stimulated by Guilford's word would be: Given convergent production, semantic content, and units as products, we turn to what is called word group naming. Here groups of words are presented to the children and they are charged to provide the class name. Sample stimuli sets are: Pacific, Atlantic, Arctic, Indian; penny, dime, nickel, quarter; snack, lunch, supper, dinner; and river, creek, ocean, lake.

Sparing you further specific illustrations, I can only state that the three parameters of Guilford's model and their interrelationship furnish a very real challenge for those who will develop materials to attempt to enhance the language and intellectual developments of children.

I would be remiss if I failed to mention the influence of reinforcement theory on this approach to language development. The praising of correct responses, the awarding of points for a child or team, the handing of a picture card to a child after an appropriate response, and the awarding of color chips to individuals are all intended to serve as stimuli that when presented strengthen the behavior they follow. This positive reinforcement of participation, i.e., looking, listening, touching, or supplying appropriate vocal or motor responses, is an important factor in language development. Generally, other aspects of reinforcement theory have permeated this program. In the general directions of PLDK Level I (Dunn and Smith, 1965), we find these statements:

> The instructor should reward the participation of each child. Even minimal performance should be reinforced with liberal praise. Many times this praise should be accompanied by handing out a color chip, stimulus card, or some other concrete reward. Generally, the instructor should ignore failure and refrain from criticizing behavior of the children. Never scold or complain. It is important to call attention to the success of individuals as well as to the group as a whole. Invidious comparisons among children's performances are to be avoided. When a child fails to live up to an instructor's expectations, this should be viewed as a failure on the part of the instructor for not designing an activity or asking a question that is within the child's repertoire so that he will be successful in performing what is asked of him.

There are and will continue to be many ideas about language development lessons for young children. Other theoretical bases will, perhaps, serve as well. With the intense and justifiable interest in preschool intervention and early school enrichment for the disadvantaged, certainly more attention needs to be turned to the generation of such activities, lessons, and programs. It is just as important that every effort be made to investigate the comparative productiveness of such language development programs.

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ADJUSTMENT PROBLEMS OF THE MULTIPLY HANDICAPPED DEAF CHILD

Marcia R. Valente

In order to best describe the author's own experiences with multiply handicapped deaf children in a school for the deaf, it might be helpful to acquaint the audience with St. Mary's program. A child may be considered for enrollment at age three. Before being accepted, the child is given a complete audiologic evaluation and the parents are interviewed. The child is then placed in a group according to prior school therapy experience and chronological age. Following a trial period, a psychological evaluation is scheduled. The school does not knowingly accept children who are severely retarded, blind, or emotionally disturbed. On the other hand, children who have the following are entered: orthopedic defects, cerebral palsy, controlled seizures, visual problems (acuity and perception), behavior problems, mild to moderate reduction of intellectual ability, symptoms of brain injury. In addition to the above mentioned, the child must demonstrate a 60 decibel hearing loss in the speech range in the better ear.

The school has both a residential and a day population. Many of the children with multiple problems fall into either category. Several have had physical therapy, speech and language therapy, and corrective surgery before entering St. Mary's and receive additional therapy during summer vacation.

The academic portion of the day is complemented by a varied extracurricular program including shop, sports, dancing, drama, and crafts. The youngest group of children have free play time and some organized activity after school. All of the children are encouraged to participate in the programs available. Regular Scout programs are also offered.

It is the feeling of the author that the children with the more obvious physical handicaps are better accepted by their peers than the children with more sublte problems. The presence of leg braces, corrective shoes, etc. does not seem important to the child who must wear them, nor does it seem to instigate comment from the other children. After the initial curiosity and interest, the peers seem to be unaware of the physical differences.

However, the children with subtle problems, whether they be physical, emotional, or social, do not seem to fare as well. It is difficult to evaluate the impact of this particular group of children in a traditional school for the deaf. As most workers in special education and the allied social sciences will admit, the pat answers so glibly given are now under attack. The different behavior now demonstrated by a portion of the deaf population has necessitated a veering from the traditional methods of teaching. Teachers in training are now being made aware of the multiply handicapped child, and more sophisticated media are being developed with which to diagnose the obscure. St. Mary's own population has changed, and educative procedures are in a state of flux.

In the past, classes at St. Mary's have usually consisted of eight children. One of the first changes in the school was to create smaller groups of four or five children. There are several valid reasons for this. The teacher is better able to observe how each child functions. There is more time spent on developing individual skills, since the children are likely to be working at different levels in each subject. Most of the children in these special classes exhibit behavior which is inappropriate in a classroom situation. It is felt that deafness alone requires a vast amount of personal adjustment in the individual, since this is an oral and aural world. So, then, the child with other problems as well as reduced auditory function seems to devise his own ways of dealing with his environment. It has been observed that some of the children will deal violently with any obstacle—this may be another child, an adult, or perhaps an inaminate object. Others seem to withdraw and lose contact with the environment.

At this point, it might be profitable to examine three distinct examples of children who are now at St. Mary's. The first is a little girl who has been in residence for two academic years. The mother of the child had rubella during the first six weeks of her pregnancy. The child was born with a heart defect and an orthopedic problem which involved both legs. As she grew older, a bilateral sensorineural hearing loss, lowered intellectual ability, poor dental structure, and a visual-perceptual problem were diagnosed. She had been hospitalized for varied treatments and evaluations and at the age of four was enrolled as a day student in a school for the deaf in her city. She was discharged after two years, and the parents were advised to institutionalize the child because she was severely retarded. When she entered St. Mary's, the parents reported that she could not eat table foods and was fed prepared baby food. She did not dress herself, had problems with sleeping, and was unable to communicate. She was placed in a small special class, and emphasis was initially placed on the self-help areas. After a few weeks, she was eating regular food, could use a fork and spoon, and shortly thereafter learned to use a knife. In the department, she soon began to dress herself and became adept at buttoning her clothes and tying her shoes.

Since this child goes home every weekend, her parents have been able to see changes occur and have received continued reports on their daughter's progress. Academically, the rate of achievement has been slow but consistent. She has continued in a small class and has acquired some skill at speechreading, reading, and writing. Her own speech is unintelligible, but she has learned to communicate in other ways. It is felt, however, that in this case, the child has made a good adjustment, is spontaneous, and seems content.

In another instance, a little boy was enrolled in the program at the age of three. There was no significant medical history and no known cause of deafness. This child was from a rural area and was a resident pupil. During the two years he was in the preschool program, he exhibited temper tantrums and generally destructive behavior. His ability to learn seemed adequate. At the age of five, he was placed in a class consisting of four boys. Each of these children had a history of being a management problem, and it was felt that probably three of the four were underachievers academically. One of the first rules which was made in the classroom was that, as far as possible, there was to be no physical violence directed toward another child. Specific limits were made concerning the desks of the children and the teacher. The cupboards and drawers were also off limits, and only materials being used at any particular time were in the open. A strict routine in the classroom was maintained at all times for the first semester. This was also extended to govern the use of the lavatory and behavior in the dining room and in the halls.

In spite of strict ordering of his school day environment, the little boy continued to become uncontrollable. He wore glasses, and a favorite act of rebellion was to grasp the bows of the glasses and snap them. After many months of observation, it was tentatively suggested that perhaps a mild sedative be tried on a short term basis. The medical consultant concurred, and he prescribed the medication and dosage. During this time, the child was more attentive in class and less distractible, and the tantrums decreased in frequency and intensity. The medication was withdrawn after two months, and it was noted that the child was able to exert some control over his own behavior and continue to improve academically and socially. He has since been promoted into regular classes and is achieving at grade level.

The last child to be discussed is a little boy who entered the program at the age of six without prior school experience. Again, there was no significant history. When he started at St. Mary's, it was felt that he should be placed in the preschool group for social adjustment and to acquaint him with school routine. Rather than join the other children or watch them, the child would sit on the floor in a corner and rock. He would sometimes crawl after another child and sniff at his shoes. He did not show any interest in toys or games and did not seem to relate to other people. His body seemed flaccid and lethargic. The only audible sounds he made were akin to quacking. Because the preschool physical area is large and there are many children in the group, this particular child was moved to a special class in which he could be more closely observed and diagnostic teaching methods employed.

This little boy, in a classroom situation, lacked any degree of spontaneity. He seemed rather compulsive about arranging his belongings in and on top of his desk. He would put his crayons into the box in the exact order in which they had been. Before beginning any type of writing, he would first push both shirt sleeves up and turn his hearing aid off. His attention span was negligible, and his expression would be vacant. Visual-motor skills were poor and gross motor activity not in keeping with his chronological age.

In addition to the problems which were observed in school, subsequent conferences with his parents revealed a strong conflict between the father and mother, each blaming the other for the child's difficulties. It was reported by the parents that the child did not sleep at night and wandered through the house at random. He was not allowed to play outdoors and was not given any opportunity to meet other children in his vicinity. The father indicated that he would not spend time with the child because "he is not a real boy."

The boy did not seem to know how to use simple toys, such as a ball or blocks. As time went on, it was discovered that he was able to write series of numbers ranging into the thousands. He again seemed compulsive and, if left on his own, would cover sheets of paper with consecutive numbers. Skills in the speech and language areas were inconsistent, and academic progress to this point was spotty. Additional parent counseling has been unsuccesful, and suggestions for modifying the child's home environment have been rejected.

It is hoped that the three preceding examples will help to demonstrate the variety and complexity of the multiply handicapped children at St. Mary's.

As mentioned before, the staff at the school, although geared primarily toward the education of the deaf child, has assumed the responsibility of providing an adequate and gratifying total education for many "deaf plus" children. St. Mary's, in general, has a well ordered daily schedule which is followed not only in the class room, but in the residential departments. House parents are asked to describe the behavior of a child with respect to sleeping, dressing, playing during free time, etc. The teacher of a multiply handicapped child might offer suggestions which would help the child when he is involved in the larger group during after school activities. Opportunities for short field trips are provided; and in many cases a nature walk on the school grounds, a trip to the zoo, mailing a Valentine card, or buying an ice cream cone comes first with some of the children. Again, the author wishes to emphasize the value of smaller classes for this group of children.

In an attempt to create a program which would be beneficial for the multiply handicapped deaf child in terms of total growth and adjustment, the most important factor seems to be structure. The approach has been eclectic, in that portions of many philosophies have been used. For many multiply handicapped deaf children, school is their first exposure to an ordered world. Most parents have reported that they are usually at a loss when it comes to handling their child, and they become inconsistent in their demands and expectations. Again, since communication is a problem, parents, siblings, and the child in question usually demonstrate some breakdown in interpersonal relationships within the family unit. Parents are invited to observe their child in the classroom, which gives them an opportunity to see the child react to a structured situation. The activities of daily living are strictly scheduled and limits are imposed. Unacceptable behavior is firmly handled. In contrast to the progressive and permissive atmosphere, which most of the children cannot grasp, concrete limits are set.

So many of the children operate in a disorganized and haphazard manner in all aspects of living that the limits seem to be appreciated. A feeling of security is experienced when one of the children knows the extent of his freedom. If he ignores the boundaries which have been designated, he knows that he can expect to be corrected. At first, this may seem rigid, but the end results appear to be gratifying. It was interesting to this author to learn that this same philosophy is currently being practiced in a residential program for emotionally disturbed children in the Buffalo area.

Most of the children who are presenting behavior and adjustment problems seem to accept routine and order. They tend to relax and are able to work more effectively within a proscribed area. In addition to establishing a model by introducing limitations on behavior, it has also been felt that by breaking the school day into short work periods which take the fleeting span of attention into consideration, short periods for free play, rests, and organized play are also valuable. Overt acts of rebellion tend to decrease as the child settles into the routine.

It seems that when the external world is ordered for the child, internal controls begin to emerge. By making the environment predictable, the child gains a clear idea of what he may expect from his environment. This may also be his first experience with an adult who will react consistently and treat him consistently on a day to day basis. The teacher-child relationship is paramount, since the teacher in this case must assume a many faceted role. She is not only responsible for academic training, but will probably include manners and all forms of social graces in a lesson plan.

At the risk of being repetitious, this author feels that a new era in special education is beginning. At St. Mary's the primary concern is with the child. To some, the disability and methods of teaching the disability are of major concern. But what shall be taught when there are many problems? Which disability is most important? If all the time is spent examining all of these children's problems, how much time will be left for the children?

The realization that the number of multiply handicapped deaf children is apparently on the increase and that these children will be seeking adequate educations implies a responsibility on the part of educators. The somewhat experimental nature of the existing program at St. Mary's is the beginning step in the shaping of futur[illegible]cilities for the multiply handicapped deaf children. As mentioned in an earlier section, the teachers who are being trained in the field now are given material concerning these children. Better methods are being devised, materials for teaching are being created, and programs are being initiated in schools throughout the country. Although many unanswered questions remain, the search for better education and facilities will continue.

THE SYNTACTICAL STRUCTURES OF PRESCHOOL CHILDREN FROM CONTRASTING SOCIAL ENVIRONMENTS

Paul Weener

Recent research by Bernstein (1960; 1962a; 1962b; 1964) and Lawton (1963) has shown that distinct forms of spoken language are associated with different sociological strata.

> It is proposed that the two distinct forms of language use arise because the organization of the two social strata is such that different emphases are placed on language potential. Once this emphasis or stress is placed, then the resulting forms of language use progressively orient the speakers to distinct and different types of relationships to objects and persons (Bernstein, 1960, p. 271).

The two forms of language Bernstein (1962a) calls codes, and he distinguishes between a restricted code, characteristic of the lower classes, and an elaborated code, characteristic of the middle classes.

Distinguishing features of the restricted code include high structural redundancy, limited range of syntactic alternatives, and speech restricted by its social context. It is a status oriented code, manifested in its extreme in military and ritualistic settings, where the setting determines the use and structure of speech. The status orientation of the lower class society, with its clearly defined roles, fulfills the conditions necessary for the development of a restricted language code. Children brought up in this environment learn a speech form "which discourages the speaker from verbally elaborating subjective intent and progressively orients the user to descriptive, rather than abstract, concepts" (Bernstein, 1960, p. 271).

The elaborated code has less structural redundancy with a wide range of syntactic alternatives to choose from. The meaning of the verbal interaction in this code does not depend primarily on the roles of the people involved, but is expressed by elaboration and expansion.

The middle class, with its flexible roles and extensive interaction among status positions, encourages the development of an elaborated code. The middle class child uses language to express his subjective intent.

> Speech becomes an object of special perceptual activity and a theoretical attitude is developed towards the structural possibilities of sentence organization. This speech mode facilitates...sensitivity to the implications of separateness and difference, and points to the possibilities inherent in a complex, conceptual hierarchy for the organization of experience (Bernstein, 1960, p.271).

The research reported here concerns the differences between samples of language of two preschool populations—a group of children from a remedial preschool program, and a group of middle or upper middle class preschool children. In the context of the theory outlined above, it was hypothesized that the former group would reveal a restricted language code, the latter an elaborated code. In particular, H_1: children from upper middle class homes exhibit a larger vocabulary than children from lower class homes.

Method

Subjects. Two groups of 12 preschool children were selected from disparate social environments. The high social group was selected from first year pupils in the preschool program at The University of Michigan Elementary School. All of the parents of this group had at least a college degree and the fathers were professionally employed. The low social group consisted of 12 pupils from the Perry Preschool Nursery Project in Ypsilanti (Michigan). Pupils in this project came from culturally deprived homes and tested below 85 on the Stanford-Binet Intelligence Scale, Form L-M. At the time of the experiment, both groups had been in the preschool programs for about six months. The low social group had a mean age of 45.9 months; the high social group had a mean age of 46.4 months.

Procedure. The subjects were taken in groups of two into a room with a slide projector, a screen, and a tape recorder. There was a five minute warmup session in which the subjects were told about the equipment and were acquainted with the procedure. Two sample slides were shown and, to encourage spontaneous verbalization from the subjects, the experimenter asked several questions about each slide.

The experimental session consisted of showing 20 colored slides for 20 seconds each. The slides depicted people and animals, usually engaged in some activity. The experimenter's participation in the session was limited to a few standard questions which were intended to promote the subjects' participation. Wireless microphones and FM transmitters were used to facilitate transcription. This equipment made it possible to place the tape recorder out of sight in another part of the room. There was no evidence that any of the subjects knew that their talk was being recorded.

Data Analysis. The recorded tapes were played back and a record of each session was written out completely. The rules for classification of words and sentences were the same as those used by several investigators, notably Templin (1957). The following features were scored:

1. Percentage of words in each form class based on total number of intelligible words uttered.
2. Percentage of words in each form class based on number of different words uttered.
3. Number of different words per 100 words uttered (type-token ratio).
4. Sentence length.
5. Sentence complexity.
6. Total words used (tokens).
7. Total different words used (types).

The number of unintelligible words for each subject was estimated and included in the total word count, but only intelligible words were included in the totals for form-class percentages. The data on sentence length included unintelligible words, but ratings of sentence complexity excluded sentences containing unintelligible words.

Two subjects from the low social group did not respond to any of the pictures. This behavior is reflected in the scores for total words and total different words but not in the remaining measures. The recordings of two subjects from the high social group were faulty and were not included in the analysis.

Results and Discussion

Four indices of grammatical structure and three measures of vocabulary were considered relevant to the two hypotheses, respectively. There were significant differences between groups on all four measures of grammatical structure: length of sentence, sentence complexity, percentage of nouns used, and percentage of different nouns used. Subjects in the high social group uttered longer and more complex sentences with relatively fewer nouns than those in the low social group. These results support the first hypothesis.

The low level of grammatical complexity exhibited by the low social group reflects a very limited use of the possible syntactic structures. Only about 16 percent of the utterances by subjects in this group could be classified as containing a complete simple sentence. There was only one compound sentence used and there were no examples of subordinate clauses in complex sentences. In the middle class sample, on the other hand, about 57 percent of the utterances were complete sentences, and all but two subjects used compound or complex sentences.

The two groups differed significantly in the total vocabulary used and in the number of different words used. These two indices of vocabulary support the second hypothesis. A futher comparison of the grammar of the two groups can be made from the distributions of frequency of occurrence of the remaining parts of speech. The two groups differed most in the relative use of the noun and verb classes.

The differences in the verbal behavior of the high and low social groups observed in this study accord with the contrasts between the elaborated and restricted language codes described by Bernstein. It may not be correct, however, to infer that these differences are the result of social class, since the two groups also differed in mean IQ. To the degree that the IQ scores are related to the language measures used in this study, decreasing the mean difference in IQ scores between the groups would diminish the differences between the groups on the language measures. For the purpose of certain applications, including classroom instruction, the quantitative evidence presented here for the use of a more restricted code by the low social group may be important in its own right, apart from the search for its controlling variables.

Summary

Seven measures of the verbal behavior of two groups of preschool children (one of middle class background, the other of lower class background) were compared. The language samples were spontaneous responses to 20 colored slides. The middle class group uttered longer and more complex sentences with relatively fewer nouns and greater type-token ratios. Thus, some evidence was provided for the theory previously put forth which attributes a more restricted language code to lower class children and a more elaborated code to middle class children.

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ABSTRACTS

ASSESSMENT OF SPEECH AND LANGUAGE IN THE NEUROLOGICALLY IMPAIRED CHILD

Daniel R. Boone

Each year at the Children's Rehabilitation Unit at the University of Kansas Medical Center, some 90 children, ages 3 through 16 years, with suspected or actual learning disabilities receive an intensive team evaluation by the pediatrician, the psychologist, the speech pathologist, the audiologist, the educator, and the social worker. As a result of these evaluations, many of these children are found to show evidence of central nervous system impairment. This paper represents the observations of the speech pathologist in the assessment evaluation of these children with central nervous system impairment. The observations have been tempered and validated by a followup of many of the children in speech and language therapy, a therapy process which demands continuous ongoing assessment.

No consistent pattern of verbal dysfunction has been observed in these children. Each child generally presents a pattern of impairment somewhat unique to his own disability and his own individual environmental background. Particular emphasis will be given to articulation testing of these children, employing both standardized tests and observations. Deep articulation testing, as recommended by McDonald, has been particularly helpful in finding those residual articulation skills in children with rather gross articulation impairment. Identification and discussion of atypical oral patterns, as seen in such problems as athetosis or apraxia, will be given. Relationship of auditory discrimination to articulation ability in these children is questioned; of particular relevance appears to be defective auditory memory span.

Language testing of the children includes such standardized assessment devices as the Illinois Test of Psycholinguistic Ability and the Peabody Picture Vocabulary Test. A lack of normative information as to how well a child should understand what is said to him presents a continuing dilemma to the speech pathologist. Subtle language impairments such as confusions in syntax, left-right confusion, etc. are common findings of impairment. Focus is given in the assessment of the neurologically impaired child to his residual skills, his "can do" behaviors which are then exploited in his subsequent speech and language therapy.

VOCATIONAL INFORMATION FOR THE INTELLECTUALLY SLOW DEAF ADULT

Harlan D. Conkey
L. Gerald Buchan

The authors posed the following problem for investigation: What methodology and media can best be utilized to present vocational information to deaf retarded adults of Oregon Fairview Hospital and Training Center?

The criteria for selecting the sample population were as follows: (a) a hearing level beyond 50 dB on ASA norms, (b) some ability to use sign language, (c) potential capability of returning to the community, and (d) an interest in attending group sessions. From this list of criteria, five adults were chosen to be the sample population for this pilot project.

Vocational information was presented through sign language and gestures. The following media were explored in presenting vocational information: (a) group discussion, (b) role playing, (c) on the job visits, and (d) on the job visits with video tape recording.

This pilot study suggests that vocational information presented to deaf retarded adults with on the job visits, in combination with video tape recording of the visit, is an effective medium to the world of jobs.

BEHAVIORAL DISORDERS

SELECTION PROCEDURES IN PREPARING TEACHERS FOR EMOTIONALLY DISTURBED CHILDREN

Evelyn D. Adlerblum

If there is anything clear about the term emotionally disturbed children as applied to children in specialized school settings, it is that it denotes a large, unclearly defined, conglomerate population of troubled children whose range of diversified, overlapping, and even contrasting behaviors and learning responses challenges everything we know—and much we have yet to discover—about teaching children. Teachers at work here find each child has his own pattern of pathology overlaid on those natural, individual differences which characterize all children. These troubled children, therefore, require a particularly high order of teaching skill.

What does it take to teach them, and who can do it? How can we identify for this specialized area of teacher education potentially able students? These are questions basic to our selection purposes. What we are looking for must grow out of our goals in teacher education—the kinds of education and opportunities for learning we expect to provide for disturbed children in classrooms. If we believe that because these are disturbed children we expect to achieve little and will settle for getting children through a day in a classroom by carrying out pedestrian implementation of stereotyped curricular procedures, then our teacher selection process should be comparatively simply.

If we want to achieve more than this, then the field requires sample findings from the pilot experiences of teacher education programs working in this direction. These descriptions and data will need to be examined and appraised before we can set up reliable goal oriented, realistic criteria for selecting applicants to become teachers of emotionally disturbed children. The material which follows is submitted as one example of a program's experience.

In the New York University program, the rationale and working design for selecting students is correlated with our view of the teacher's role. Our full time graduate program to prepare specialized teachers for emotionally disturbed children is a one year curriculum for selected qualified teachers of elementary education, leading to the master of arts degree or to a sixth year certificate of specialization for those students already holding a master's degree in education. The program was initiated by a collaboration of the Departments of Elementary Education and Educational Psychology as a pilot study sponsored by the National Institute of Mental Health (5 T1 MH-8172-03). The faculty team who planned and teach its curriculum include Professors Merrill T. Hollinshead (Codirector); Frances Minor, Chandler Montgomery, Inez Smith (evaluation consultant); Dr. Harris E. Karowe (consulting psychiatrist); and Evelyn D. Adlerblum (director).

The program centers around the unique relationship existing between the teacher and child in the classroom setting, with the process and content of teaching as its primary emphasis. Through courses, advisement, seminars, observations, and practicum experiences, the program endeavors to extend the teachers (a) knowledge of curricular possibilities through providing the means for personal involvement and experimental tries with a variety of tactile, motor sensory, verbal, and other curricular materials; (b) ability to engage in a systematic educational assessment of individual children, which may then be utilized to provide appropriate opportunities for education and growth; and (c) knowledge of pertinent psychoeducational research, emotional disorders, and therapeutic processes.

Teaching competence derived in this context should enable a teacher to develop professional identity and thereby to serve as a contributing member of the psychoeducational team. Hopefully, it also prepares her to work with some effectiveness in the many school settings where clinical services are scarce or nonexistent.

What kinds of persons are we looking for to become such teachers? Institutional and mental health reports concur that the health personality of the teacher is the greatest single determinant of teaching effectiveness. A long list of mental health specialists, beginning with Freud, have described impressive attributes of the "healthy personality." Flanders (1961), Spaulding (1962), Sarason (1962), and others have researched specific components of teacher effectiveness. Closer to home, Bower (1964), Hollister (1962), Mackie (1957), and Morse (1965) have commented from their experiences on teacher behaviors they regard as favorable to working with disturbed children. However, as yet there is no specific research validated information we can use. Also, we are thinking of producing, not merely a teacher with the professional equipment to work with just one type of troubled child, but a teacher who can apply her teaching skill in a variety of educational settings.

In the main, we are not looking for a teacher applicant with uniquely different personality qualities because the children are deviant. Rather, we want one with more of a good thing—the kind of person whose qualitative functioning is perceived as positive and sustaining by all children, and who can build upon this to deal with the greater complexities presented by troubled children. As we know, seriously disturbed youngsters may have many kinds of problems: distorted perceptions of reality in objects, persons, and self; inadequate emotional development as evidenced by flatness of tone, impulsivity, hostility, and excessive dependency. They have difficulty in focusing, perceiving, organizing, conceptualizing, speaking—in short, in learning and doing. And their erratic behavioral maneuvers produce blurred communication clues and poor teaching predictability.

It follows that, in trying to deal with these gaps, we would optimally be looking for potential teachers whose personal traits would tend to counteract the children's deficits. Such a teacher would require physical energy and the ability to withstand many kinds of frustration. We would want a teacher with naturalness and the kind of "being for people" maturity that children might trust and move toward. Other desirable characteristics include clarity in speech and organization; openness and flexibility in dealing with children's individual differences and in shifting gears according to the requirements of the unpredictable; the supportive caring quality that leads a teacher to listen, to observe, and to assess what children show of themselves; an interest in making fresh tries to elicit children's learning responses that they may be valued, clarified, and used to build on for further teaching. Such special boons as a leavening sense of humor that may be used to sustain a child's wobbly self image, a taste for scholarship, or any personal enrichment through experiences or special skills add to the teacher's desirability.

No single teacher can ever embody this total pattern; and the responsibility for helping a well endowed student to develop even a good part of it belongs to the teacher education program. However, a diversified selection process that allows applicants to reveal themselves in various ways can help us to identify persons who contain within themselves certain parts or dynamic templates of the ingredients we value—who are good bets for the field.

The Selection Process

In our program, students are admitted on the basis of a multiple criteria selection process:

> All applicants are required to be qualified, licensed teachers of Early Childhood or Elementary Education. During the three-year pilot study period, the staff has elected to award its N.I.M.H. grants to only those students with experience in teaching. It was considered that a record of some successful teaching in a school (preferably two years) constituted a desirable foundation for further professional preparation. In addition, several inexperienced new graduates of teacher education have also been admitted. They have paid their own tuition costs. At the conclusion of the pilot study period, we will now admit more of these students as grantees.
>
> All students meet the admission requirements of the Graduate Division of the School of Education for the Master's or Sixth Year program. This includes successful completion of the Written English Examination. Three persons who know the professional work of the applicant are consulted as references.
>
> ### Written Narrative Paper
>
> The program /¯designated in the catalog as the 125E curriculum_/ requires each applicant to submit a written narrative paper, regarded as confidential. It has two parts. The first involves self-assessment. It deals with the applicant's professional commitment; a consideration of personal strengths and weaknesses as they apply to this profession; and some projected view by the applicant of her professional future. The second part is an autobiography of approximately 1,000 words.
>
> This written self-depiction elicits varies responses. An occasional applicant drops out here. In such an instance, the anxiety which the requirement for self-documentation stirs up may be indicated in an interview, and is likely to be in keeping with other observable difficulties of the applicant. Applicants' written responses are of many kinds. Some write guardedly, or blandly and in routine terms. Others really talk on paper. Sometimes we learn of the loss of a parent or marriage partner through desertion or sudden death, of divorce, psychiatric treatment, or of poignant childhood experiences from which this professional interest grew. Such personal material may or may not ever come up again either in an advisement interview or group contact throughout the study year. The writing contains not only the applicant's view of his historic experience

and glimmers of self-preoccupation or openness, but also exhibits his language, spelling, acuity of thought and expression.

Individual Interviews

At least two individual interviews are conducted with the applicant, one by the director, another by the codirector, and sometimes a third by an additional staff member. One interview is concerned with the applicant's motivation for this kind of teaching, her reality organization, the rigidity or flexibility evidenced, her handling of personal anxiety, and her ego defenses. The other interview relates to her personal and educational experiences, views on education for children, and any evidences of thoughtfulness or ingenuity she may offer to troubled children. An old, persistent question is kept in mind: Does this applicant see this program as a way of becoming a more competent teacher, or as a short road to becoming a therapist? Is there a real interest and pleasure in teaching children, or is there a preoccupation with the illness aspects and in being involved with them.

Three faculty members (M. Hollinshead, C. Montgomery, and E. Adlerblum), commenting on what they are particularly interested in finding out and what they note about an applicant in an interview, produced detailed responses which included the following:

> The kind of person the kind of person the applicant is: the nature of her educational background and work history; commitment to the new field; any personal difficulties which would interfere with full participation in the program; openness, verbal fluency, over-emotionality, humor, building up a relationship easily, intellectual level.
>
> How applicant sees his/her work with children: extent to which the interview comes to include the thinking-feeling reality of that work; kinds of interest and questions that led applicant toward teaching emotionally disturbed children; estimate of applicant's strength; his probable ability to sense much but to hew to a line of action. Also noted are the interest in institutional arrangements vs. individual processes; what he does know vs. what he does not know; sense of humor; curiosity; signs of applicant's definition of teaching role.
>
> Applicant's reasons for wanting to teach disturbed children; how genuinely involved with and satisfied does this person appear to be about being a teacher? How caught up in living is she? Interests, thinking, feeling? How does she feel about people, especially children? How expressed? Fixedness of assertion? Physical appearance, energy level, speech, dress? Natural or posed and self-conscious? Humor?

We find that applicants who have already had some experience in teaching troubled children and found it good but also feel they need to know much more, as well as others who have been irked by their failure to know how to help more of these troubled children in their classrooms and also want to know much more, are likely to show a high degree of commitment and application when they are admitted to the program.

Classroom Observations

Wherever considerations of distance and time make it at all feasible, applicants who are teachers working in schools are observed in their classrooms by a pair of staff members visiting them. Of the ten grantees in our present class, seven were observed in this way. One student was seen on two separate occasion to get a clearer impression.

This is a time consuming, arduous, expensive procedure. It is also valuable. One observation is indeed a limited sample, and the presence of professorial visitors is not especially conducive to classroom naturalness. If these are taken into account by the observers, however, there is still much we can learn from the live substance of seeing a teacher at work with children that does not appear either in an interview or in a written response on paper.

As with the interview, each faculty member brings with him a different vantage point and professional emphasis. The observers do not use any prearranged list of guiding questions. Yet is is interesting to note how much of what they observe individually contains answers to such questions as the following, which may be regarded as relevant to teacher effectiveness:

> What is the room like? To what degree does it reflect the children's work and interests? Do the materials and organization indicate that the class is at work here with meaningful stuff relevant to their learning capacities?
>
> What is going on between the teacher and these children? Can you tell from the children how they feel about themselves and being in this class? About the teacher? Can you tell how she regards them? How does she deal with them?
>
> As she is working now, what is this teacher trying to do? Is there evidence of teacher planning? How solid is her own grasp of the content? How well is it going? Is it clear to the children? What is the nature of their involvement? Is learning taking place? Which children are not involved? What are they doing? Is the teacher noting individuals? How? What range of participation is possible? Does this lesson seem related to something the children have learned before? Is the teacher picking up clues from children and using them? Do any problems arise? How are they dealt with?

During a classroom observation, as answers to these questions suggest themselves, we also find our appraisal of the particular teacher's capabilities and potentialities for working with disturbed children becomes clear.

Final selection is made on the basis of an overall evaluation of each one in a meeting of the staff. Applicants are considered on an individual, rather than competitive basis, as each complete docket of information is ready for review.

To recapitulate, college and work records and personal written data, as well as information and impressions gleaned through interviews and classroom observations, are considered in our selection of students. This is the nature of our selection process. An evaluation of its effectiveness will be included in the final report of the pilot study period.

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AN OPERATIONAL MODEL FOR THE MOVEMENT OF THE EMOTIONALLY DISTURBED CHILD FROM PUBLIC SCHOOL THROUGH A DAY TREATMENT FACILITY AND RETURN TO PUBLIC SCHOOL

Adrienne Ring

When an emotionally disturbed child is discharged from a psychiatric hospital setting, his continued improvement and eventual return to full time public school and community involvement is dependent upon several factors over which the hospital treatment team has little or no direct control. Certain of these variables occur prior to the time the child is admitted to the special program. This paper deals with the liaison and consultative functions of the special educator in the hospital setting, in reference to public school personnel during the critical periods of time when the child enters the special program and again when he reenters the public school. An operational model will be presented which has the goal of maximizing the probability of a successful return of the child.

In planning treatment goals for children who are emotionally disturbed, it is essential that a close liaison be set up between the public schools and the psychiatric facility. Failure to do so leaves unspecified a host of variables, each of which carries the possibility of sabotage of the teaching-treatment process. Preplanning conferences before the child enters the special program are designed to hold constant one of these variables—that of helping the public school maintain its role in assuming some measure of responsibility for the child while he attends the special program and reserving his seat, as it were, until his return.

That is, the attempt here is to help the public school, from which the child is entering the special program, continue to assume the overall responsibility for the education of the disturbed child. Although most professional educators agree on this point as a matter of policy discussion, it is an extremely difficult concept to put into practice. A more usual occurrence is that the public school regular classroom program is only too eager to have the child moved out of its area of immediate responsibility and gives little indication of any realistic expectation that the child will be returning to that program.

Reasons for this attitude are manifold and complex. In all likelihood, the disturbed child has been the source of considerable difficulty for the sending school. It is probable that he was a source of frustration in regard to both curriculum and management and control efforts of his teacher and building principal. It is possible he has precipitated considerable group and interpersonal conflict within the classroom, on the playground, on the bus transporting him to and from school, and in every other area of his involvement in the public school program. If the school has minimal resources to deal with families of children who present such problems, it is probable that such efforts have met with frustration and failure; not infrequently, such families seem to be very effective in manipulating various school personnel into battle with each other—for example, the guidance counselor with the teacher, the principal with the bus driver. It is little wonder that public school personnel are relieved to have the problem child become enrolled in a special school program in a psychiatric hospital setting. Of course, such relief must be disguised in terms of what's best for the child.

Unfortunately, it is a small step from a relief in seeing the child depart the public school to a reluctance to anticipate his return. Consequently, it is of critical importance that liaison between the public school and the special psychiatric facility be initiated at the time that the child is originally referred to the special facility. Failure to carry out this phase of the ongoing liaison and consultation with the sending school's personnel leaves the door open for possible later difficulties.

Such preadmission conferences carry the obvious intent of providing the special teacher with critical information about the child—levels of academic functioning, his characteristic response to frustration, typical patterns of interpersonal interaction with peers, management and control techniques which have been particularly effective or ineffective, and a host of other meaningful bits of information.

However, a second purpose of such conferences at the time of the child's referral to the special facility is of equal importance. It gives the special class teacher and other professional personnel who will be involved with the child in the special setting an opportunity to communicate to the public school that the child is expected to return to full community participation—including public school—and that this return may be sooner than one might expect. That is, the point here is that the public school must begin to anticipate the return of the child at the time that the school refers the child for special placement.

Current concepts in community mental health are concerned with maximizing the therapeutic potentials existent in the community itself. Actualization of such potential for the disturbed child may begin at the time of his original referral. The essential point here is that public school personnel view themselves as saving a seat for the disturbed child's return.

In doing so, not only are the teacher, principal, and other personnel more prepared to reenter the child at the time of his discharge, but also it is likely that they will be in a better position to work with the child's original peer group in anticipation of his return. If the classroom teacher is oriented toward a healthy acceptance of the child at the time of his discharge, it raises the probability that she will be conveying essential messages to the child's peer group—both subtly and overtly.

A third purpose of such preadmission conferences needs only to be mentioned here, as it is not concerned with the main theme of the paper. In some instances, the admission of the child to the special program may actually be prevented at this point. In discussing the problem child with professional personnel experienced in working with such children, the public school may discover resources within its own ranks which will make placement of the child in the special facility unnecessary.

The second phase of the liaison-consultative function between public school and special school personnel begins with the child's admission to the special program and ends with the child's discharge. After the disturbed child enters the special program, communication between the two schools becomes an issue of critical importance. Because the treatment of the emotionally disturbed child and his family in a special facility is not isolated from real life, but is a realistic community consideration, the liaison between the public school and the special clinic helps insure more community support and therapeutic leverage in dealing with the problem. By keeping the school in the community continually aware of the progress which the child is making, the public school classroom teacher and principal can anticipate what arrangements must be made in their own school system in order to provide for the eventual return of the child.

An additional advantage can be gained by the treatment team in the special facility when that team has ready access to information in regard to the school performance of the child's siblings during the treatment of the child and his family. Our experience has shown that parents frequently contact the child's public school when they have questions of appropriateness of curriculum or methods for the child in the special facility. Such information, when fed into the proper communication channels of the treatment teaching team, carries potential for additional therapeutic leverage with the family. Likewise, our experience has been that when ongoing communication is not carried on, such information is not likely to get to the team and hence loses its value in the treatment process.

Our experience in carrying on this kind of continuous liaison consultation with any particular school has shown that referrals from that school have decreased in frequency. That is, apparently such consultation has potential for the ripple effect of helping the school muster its resources in dealing with other problem children. As such, this activity appears to be providing a valuable service, having the effect of prevention.

In the day care service of Children's Psychiatric Hospital in Ann Arbor, there have been several admissions accepted for experimental purposes during the past four years. Certain children were admitted to the program on a partial, rather than on a full time basis. Sharon, a nine year old child whose symptoms were characterized by pseudoretarded features, came to the clinic one full day a week and spent the other four school days in her regular classroom. Because of the limited amount of contact hours with Sharon that were made available to the treatment team, communication with the sending school was an essential part of the total treatment process. Weekly telephone conversations and frequent meetings between Sharon's two teachers kept both schools informed as to the type of work that the child was actually able to master. Consequently, Sharon was unable to manipulate either teacher by attempting to perform below her capacity, since both teachers knew exactly what level of work the child was able to accomplish. As a direct result of this close liaison, Sharon's academics and behavior improved considerably, since she no longer was able to control her school environment through passive aggressive nonperformance.

One cannot, in practice, separate the procedure for the child's initial entry, placement, and reentry into three separate and distinct phases, since planning for the child is continual and tactics utilized in each stage tend to overlap. However, the overlapping is actually a desired effect, since continuity of procedure allows for smooth transitional procedures at the time when the child is being prepared to return to the public school system. The third phase of public school-special school liaison may be viewed as beginning when the child is being considered for discharge from the special program. To a great extent, the degree of effectiveness of the relationship during this period may be a measure of how successful the previous two phases have been.

The element of timing plays a vital role in ascertaining how successful the child's adjustment to a community school program will be. Each child's case must be considered individually in order to determine the best possible time for the child to be considered for discharge from the special clinic. The clinical team must constantly be aware of those signs of progress which indicate that the child has enough inner resources to handle a public school program. If the child is not prepared for discharge during this maximal peak of progress, adverse effects may result.

A study conducted at the Children's Psychiatric Hospital by Merle Van Dyke and Eric Berman was presented at this convention last year. According to data which they accumulated over a two year period, Mr. Van Dyke and Dr. Berman found that, as any child in the psychiatric setting begins to show signs of positive change along behavioral and achievement dimensions, he becomes a deviant member of his primary school peer group and, as such, is subject to considerable group behavior which carries the intent of having the child return to behavior which is in conformance to the pathological norm of the group. Unless the child is removed from the group at this critical time when he begins to show improvement, the child may become the focal point of a host of interpersonal behaviors of the group, with the objective of having the improving child abandon his newly acquired strengths.

The entire clinical team working with the child should share in the decision making process to determine if the child functions at a high enough level, both behaviorally and academically, to return to public school. When the psychiatric team has determined that the child is ready to go back to his regular classroom, a community planning conference initiates the movement of the reentry procedures.

It is at this point that a divergence of needs may be manifested. That is, the special program has the immediate objective of returning the child to full community participation, including the return of the child to the public school. At the same time, it is possible that the receiving public school will have limited tolerance for deviancy of the child along behavioral or achievement dimensions. Our experience with personnel from the regular public school program has been that, if we maintain our open channels of communication at this point, we raise the tolerance level of the public school to deal with whatever deviancies the returning child may present.

Unfortunately, in this business there is no guarantee of success; likewise, we seldom talk in terms of total cures. In reality, it is usual for us to expect, for many reasons, that there will be difficulties when the child returns to the regular school program. However, if our liaison, communication, and consultative functions with the public school program are maintained at this point, we lower the impact of any such difficulties. In many cases the returning child will be a source of bewilderment, frustration, anxiety, and perhaps fear for the receiving teacher. The maintenance of the supportive relationship between the special and regular teacher may serve several functions at this point: (a) it may provide the regular classroom teacher with some specific techniques with which to cope with this particular child, (b) it may provide the public school with an overall strategy in dealing with the child and his family, (c) it may serve to make the public school program a part of the total therapeutic design for this particular child, and (d) it provides the special program with ongoing followup information and serves to keep the special program in a state of readiness to administer any necessary first aid, either to the child or the school personnel.

One major consideration at this time is whether or not the child can handle a public school program on a full time basis. Many children are unable to tolerate the return to public school without being gradually weaned away from the special clinic. In these instances, partial or half time reentry is recommended, with the child making use of treatment from the school program in the special clinic for continued support in adjusting to his new setting. Once the child feels comfortable in the new classroom, it will then be easier for him to increase the amount of time spent there, until his contact with the day care clinic school is reduced to a minimum.

The special clinic team can, at the time of this meeting, impart essential information to the public school representatives concerning specific problems they can anticipate with this child. Techniques of management, control, and teaching which are found to be successful with the child in the day care clinic, as well as knowledge of what realistic expectations can be held for the child, can be of great help to the receiving teacher. Knowledge of dynamics which on the surface may appear insignificant can aid the teacher in helping the child feel more comfortable in adapting himself to his new setting. Ken, a seven year old boy at the Children's Psychiatric Hospital, was in all respects ready for placement in public school, but had continued difficulty responding to verbal controls when he became excited or stimulated. However, light physical contact—such as merely touching the child on the shoulder—would immediately calm him down. By relying on this technique, the receiving teacher was able to easily control Ken in the regular classroom and thus help alleviate much of his anxiety. Thus through a discussion of various techniques, the receiving teacher can provide a comfortable environment for the returning child and can assure a smooth transition for the child. Moreover, the public school teacher herself gains insight and knowledge into the dynamics of the child, and is made to feel more comfortable knowing that she is free to draw upon the resources of the special clinic at any time.

The child's educational therapist in the special program has major consultative responsibilities to the receiving classroom teacher in terms of a day to day ongoing liaison. Her services can be made available through conferences, telephone calls, notes, and classroom observations in order to support the public school program and help the teacher with any problems she may encounter or any aspect of the child's dynamics she may wish to discuss. With the use of the support from the special clinic, the role of the classroom teacher becomes an integral force in the regular classroom milieu.

The public school liaison and intercommunication can be utilized as a continual consultative process, so that the public school, and specifically the receiving teacher at the time of discharge, may help other children through an increased knowledge and understanding of one particular child's dynamics. Thus, the impact of the special psychiatric school program in the community is maximized, and both the public school and the special program profit through the interchange and sharing of information and ideas.

An attempt should be made to use the public school facilities as an extension of the psychiatric clinic or special program. In this way, the impact of the public school as the mental health agent is community oriented through its work with parents, the children in the regular classroom group, and the total public school staff.

Through the unique features of the community oriented psychiatric school facility, close liaison and the intercommunication with the public schools can work in the best interests of the emotionally disturbed child as he moves from public school through the day clinic and returns to public school. The secondary gain from this type of operational model is the ripple effect, which gives indirect service to a large group of children in the regular classroom.

ABSTRACTS

IMPROVEMENT IN THE ADJUSTMENT AND BEHAVIOR OF EXCEPTIONAL CHILDREN RESULTING FROM A SUMMER DAY CAMP EXPERIENCE

Lester Mann

The present investigation was directed toward determining the value of day camping procedures with various types of handicapped children. Fifty four of the latter, attending camp for the first time, were evaluated through 15 seven point questionnaires administered by a psychiatric social worker, via phone, to their parents. The questionnaires were directed toward both general benefits and specific improvements in terms of later personal, social, and academic adjustment.

Attempts were made to control the Hawthorne effect by carrying out the study ten months after the close of camp, at which time it was anticipated that any positive halo effects, engendered in parents by their childrens' stay at camp, would be considerably dissipated. The phone interviews, too, were intended to minimize personal influences on the results. The investigation found that 53 out of 54 parents regarded day camping as having been beneficial for their children. Sex and diagnosis did not relate significantly to the degree of improvement reported. Age, however, was significantly correlated, with the latter younger children being evaluated as more improved than older ones. A variable of parent satisfaction is seen as contributing to the more positive responses given general adjustment questions compared to those concerning specific functioning.

This study was supported by a pilot training project of Temple University - Buttonwood Farms, Inc., number 5 T1 MH-85430-02 of the National Institute of Mental Health, US Public Health Service, Department of Health, Education, and Welfare.

A CONCEPTUAL FRAMEWORK FOR TESTING THE PATTERNS OF BEHAVIOR EMPLOYED BY PARENTS FOR ENGAGING IN THE CHANGING PROCESS OF THE CHILD

Marjorie McQueen

The major hypothesis of this study was that the engagement of parents with the changing process of the child is discernible in the following patterns: facilitating, forcing, allowing, and preventing.

The aid of this study was to develop a frame of reference for viewing change in the child without locating the casual determinants in any one area.

The instrument used to test for the patterns was a forced choice questionnaire. The patterns were arranged theoretically into a circumplex model with two major axes: (a) forcing-allowing; (b) facilitating-preventing.

The sample consisted of the mothers of each of 83 children serviced in one of three programs during the 1964 summer school session of a Louisiana special education center. The program groups constituted three subsamples.

The findings generally contributed to the theoretical framework in a direction which indicates that parental behavior is discernible in these patterns and that the method employed merits further research.

BEHAVIOR OBSERVATIONS OF GRADE ONE PUPILS, 1966

June B. Pimm
Gordon McClure

Unacceptable and inappropriate school behaviors of 1,445 children in grade one were checked on a 100 item list by 62 teachers. Thirty-seven of the 60 most frequent items were shown to be reliable and were each related to sex, age, IQ, school, and teacher. Check list reports for 31 children assessed by psychiatrists as emotionally disturbed were compared with reports on 849 children matched for age, sex, and IQ. Results suggested that the check list would be a useful screening device for early referral to psychologists. Relationships shown between behaviors and variables for the unselected population raise questions as to the suitability of the present grade one program for certain groups.

EVALUATION OF COGNITIVE-PERCEPTUAL-MOTOR DEFICITS IN EMOTIONALLY HANDICAPPED CHILDREN

Eli Z. Rubin

The relationships between behavioral disturbance, learning disability, and cognitive motor dysfunction need investigation on a comprehensive basis. Psychological evaluations of children showing disturbances in adjustment at school should include description and evaluation of specific cognitive, perceptual, and motor functioning. Because dysfunction may occur in one or more areas, particular attention should be focused on intraindividual variability which may be significantly related to the child's ability to cope with the demands at school. The standardization and refinement of a method of comprehensive assessment of cognitive motor functioning are the first objective of the research carried out by the Lafayette Clinic Cognitive Motor Research Project.

Emotional disturbances in children showing poor adjustment and learning need to be defined more clearly. Earlier studies have indicated that a large percentage of children showing maladjustment at school show evidences of cognitive motor dysfunction and that the symptoms of disturbance may represent a secondary reaction to the inability to cope with the demands of the school situation, rather than represent a primary illness stemming from earlier environmental causation causing failure in adjustment and learning. The second objective of our study is to investigate this hypothesis by determining the relationships between cognitive motor dysfunction and behavior and academic adjustment.

In order to plan adequate and specific remediation programs for children with learning and behavioral maladjustment, it is essential that a comprehensive psychological assessment be carried out. A final objective of our study is to use our method of evaluating cognitive motor dysfunction to compose groupings of children with similar dysfunction so that special cognitive motor retraining may be applied. The next phase in our research program will be the validation of our retraining techniques.

The present study consists of an assessment of 400 children from a suburban community northeast of Detroit selected from grades 1,2,3 and 5. One hundred children of both sexes have been drawn from each grade. Half of each group are children who have been defined by the behavior checklist as showing maladjustment at school; the other half are children without evidences of symptomatic behavior who have not been referred to any resource for problem behavior and have not failed a grade at school.

In addition to the standardized test (such as the Wechsler Intelligence Scale for Children, Frostig Developmental Test of Visual Perception, the Bender-Gestalt Test, the Illinois Test of Psycholinguistic Ability, the Raven Matrices Test, and the Metropolitan Achievement Test), several other tests have been designed to measure a variety of cognitive motor functions, including visual, auditory, tactual, and kinesthetic perception; verbal and nonverbal integration, and fine and gross motor coordination.

The findings from this study should provide considerable information about the relationships of cognitive motor dysfunction to school maladjustment and to learning disability in an elementary age population and should provide a methodology for comprehensive assessment.

LEARNING DISABILITIES

AUDITORY AND VISUAL LEARNING RELATED TO ITPA SENSORY CHANNELS

Antje E. Cripe
Betty Ann Wilson

Recent publication of the newly devised Illinois Test of Psycholinguistic Abilities was greeted with considerable interest by speech clinicians. The ITPA is based on Osgood's hypothetical model of the communication process and is designed to evaluate psycholinguistic functioning in children between two and a half and nine years of age. Children's scores on the nine subtests may be compared in the form of profiles, indicating relative strengths and weaknesses in auditory and visual linguistic functioning.

An ever expanding body of research relating to the ITPA has been accumulating since its publication. In the great majority of studies, the test has been used in its entirety for purposes of describing, rather than predicting, the psycholinguistic behavior of a selected group of exceptional children. A historical review of the literature reveals that numerous writers believe individuals do differ in their comparative ability to deal with various types of sensory stimuli. If it can be demonstrated that definite sensory channel preferences exist in certain adults, it would be of interest and import to determine whether comparable differences exist in children. The structural organization of the ITPA may lend itself to the identification of children whose visual and auditory linguistic functioning are discrepant. The purpose of this study, then, was to compare children's auditory and visual performance on the ITPA with their responses to selected auditory and visual learning tasks.

Two groups of children, selected on the basis of discrepancies in performance on four subtests of the ITPA, participated in four experimental learning situations. Because of the structure of the stimulus ensembles, it was possible to compare the learning patterns for auditory linguistic (syllables) and auditory nonlinguistic (noises) stimuli and, further, to consider the impact upon learning of visual transformations of these auditory linguistic and nonlinguistic stimuli.

The investigation was designed to provide data relating to the following major questions:

1. Do the experimental groups differ in the overall level of performance achieved?
2. Do the experimental groups differ in their learning of linguistic and nonlinguistic stimuli, regardless of mode of presentation?
3. Do the experimental groups differ in their learning of auditory and visual stimuli, both linguistic and nonlinguistic?

Participants in this study were 36 first grade children who met the following criteria: No subject had a hearing loss and each child met a 20/40 criterion on the visual screening test. Subjects achieved an IQ score of 90 or above on the Goodenough Draw-a-Man test and/or the Peabody Picture Vocabulary Test. Subjects demonstrated articulatory skills within the normal range according to the norms of the Templin-Darley Screening Test of Articulation. In either the decoding or association aspect of the ITPA, each child achieved a standard score in one sensory channel which was at least one standard deviation above that in the other channel. Furthermore, this type of profile was not reversed in the second subtest pair.

Those subjects with higher auditory subtest scores were assigned to the auditory group; those with higher visual subtest scores, to the visual group. Auditory subjects included thirteen males and five females with a mean age of seven years, four months. There were ten males and eight females in the visual group with a mean age of seven years, three months.

The experimental apparatus included the subject response assembly, slide projector, tape playback, attenuator and headphones, and a remote programer unit. The response assembly was a three sided booth with eight illuminated pushbuttons and a reward light mounted on a shelflike projection of the booth. The remote programer consisted of a rectangular chassis with eight switches, each of which was connected with one of the eight buttons on the subject response panel.

The stimulus ensembles were of four types: auditory nonlinguistic, visual nonlinguistic, auditory linguistic, and visual linguistic. The auditory nonlinguistic stimuli are those used by House, Stevens, Sandel, and Arnold (1962) and are essentially band-pass limited and shaped noises. The three bits of information in the ensemble were coded in the three parameters: frequency, intensity, and time. The entire test sequence was recorded with a five second pause between each item.

Visual transforms of the auditory nonlinguistic stimuli were produced with the Kay Sona-Graph Sound Spectrograph. One hundred and twenty-nine slides were made from the sonagrams.

The auditory linguistic stimuli consisted of eight vowel-consonant syllables which were produced by combining two vowels with four consonants. Three bits of information were contributed by the vowel sound, the manner of the consonant sound production, and the place of consonant production. The syllables were recorded on professional quality recording equipment. The visual linguistic stimuli were visual transforms of the described syllables, processed on the Kay Sona-Graph Sound Spectrograph.

From each of the 4 ensembles, test sequences of 129 items were generated. Each test was divided into 8 blocks of 16 items. Within every block, each of the 8 stimuli in the ensemble appeared twice. The occurrence of individual items was constrained, so that each stimulus followed itself twice in the entire test.

Preliminary testing, extending over a three month period, was conducted in order to locate subjects meeting preestablished criteria. Each of these subjects then participated in two experimental sessions. Two tasks were presented at each session, and the order of task presentation was determined by Latin square design. Auditory stimuli were presented binaurally under high quality earphones at a comfortable listening level, and the visual stimuli were projected from an approximate distance of 60 inches, with a low light setting on the projector. In essence, it was the child's task to associate each item of a given ensemble with a particular response button.

This study was designed to compare learning behavior of two experimental groups—auditory and visual—on four learning tasks. Response curves were plotted for both groups and these tended to assume the same general configuration for each learning task. No group learning occurred on the auditory nonlinguistic (noises) task and performance persisted at a chance level. On the three remaining tasks, visual subjects achieved a slightly higher score on the final block of trials. The greatest discrepancy between the two groups occurred on the visual nonlinguistic task (noise sonagrams.)

An analysis of variance using four factors—experimental group, linguistic properties of the stimuli, mode of presentation, and blocks of trials—was employed for further examination of the data. The results of this analysis indicate that the main effect associated with the experimental groups was not significant; hence, the original hypothesis of no difference between auditory and visual groups cannot be rejected. The ANOV further revealed an absence of a main effect associated with the linguistic properties of the stimuli. When one disregards the manner of presentation (auditory or visual), the learning of both linguistic and nonlinguistic stimuli was virtually identical.

The significant main effect associated with the mode factor indicated that the manner of stimulus presentation affected the overall level of learning. It was anticipated that subjects demonstrating superiority of psycholinguistic functioning in one sensory channel might learn with greater ease those ensembles presented through that channel. It is of interest to note that both subject groups demonstrated approximately the same pattern of learning. Both achieved a higher level of performance when the stimuli to be learned were presented visually.

It was expected that learning would occur across blocks of trials, and the analysis confirmed this expectation as indicated by the significant effect $p < .01$ associated with blocks. It was anticipated that subjects would experience less difficulty when learning stimuli in their originally coded form. The results revealed that auditory presentation was more effective in the case of linguistic ensembles. However, the visual transformations of nonlinguistic materials (noises) were more readily learned than the auditory enemble.

In summary, the results of the analysis of variance indicate a distinct relation between the mode of presentation and the linguistic properties of the ensemble. The results further reflect comparable performance by the two experimental groups.

The present investigation was concerned with the auditory and visual learning behavior of two groups of children demonstrating specified discrepancies in performance on selected subtests of the Illinois Test of Psycholinguistic Abilities. The two experimental groups were comparable in age, grade placement, intelligence, and articulation skills. It was the primary purpose of this investigation to relate the learning behavior of two experimental groups to their respective ITPA subtest profiles. Because these groups did not differ significantly in their learning of visual and auditory stimuli, and because the groups achieved approximately the same overall level of learning, the following major conclusion seems to be indicated: the ITPA subtest score discrepancies of the type used to identify subjects should not be interpreted as indicating actual discrepancies in the child's ability to learn auditory and visual stimuli. It is unknown whether this conclusion suggests that differences in children's ability to learn auditory and visual stimuli—if these exist at all—are extremely subtle, or whether the ITPA auditory and visual subtests simply fail to measure such differences within a child's sensory and learning capabilities. Two conclusions relative to the speech perception behavior for all subjects combined are also indicated. When responses to auditory and visual stimuli were pooled, there was remarkably little difference in the overall learning of linguistic and nonlinguistic stimuli. Further, there was a marked, but variable, effect upon learning when auditory stimuli were transformed into visual displays.

Since the experimental design and procedures employed in this investigation have proven to be useful for the study of learning behavior of normal first grade children, it is hoped that the study will stimulate much needed systematic study of psycholinguistic abilities and speech perception behavior in children.

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DEVELOPMENTAL EVALUATION AND THE INSTITUTION OF REMEDIAL PROGRAMS FOR CHILDREN WITH LEARNING DIFFICULTIES

Marianne Frostig

During the last decade such terms as educational therapy, psychoeducation, and therapeutic education have become more and more common. Educators and even the general public have become more aware that learning disturbances are usually treated more effectively by educational methods than by psychotherapy only, or by medication only, or by any other method used by itself. But very special educational methods based on an understanding of the underlying symptoms of the learning disorder may be required for this task, and therefore the practice of educational therapy requires special professional training and skills, It is the task of educational therapy not only to treat the superficial disability of lack of achievement in a school subject, but also to ameliorate the underlying symptoms which make learning difficult.

For instance, from the point of view of educational therapy, a reading difficulty is not regarded as an inability to read as such, but as a sign that the child lags in certain developmental skills. He may have difficulty in the early development of sensory motor skills, in eye movements, or in visual perception. He may, for example, be unable to perceive the order of letters in a word and therefore read "cut" for "tuck," or he may have difficulty in auditory perception and be unable to differentiate the "m" and "n" sounds. He may have difficulty in articulation. He may have difficulty in remembering sequences, such as the days of the week. He may be unable to grasp an abstract thought or to keep more than one fact in his mind at a time, so that the content of stories read by his agemates may be far beyond his comprehension.

The nonreader, or the child who fails in arithmetic or spelling or in other school subjects, may be beset with many difficulties besides that of being a poor scholar. He may be unable to compete with other children in sports; he may be scolded by his parents for doing his chores poorly at home; he may get into fights and squabbles without apparent reason; and he may be generally disorganized or thoughtless, or too slow, or too hasty. In other words, he may be a misfit.

Unfortunately, it is often not possible to make an etiological diagnosis pinpointing the cause of the deviant behavior and learning problems. But since it is a general human quality to want to know the why of events, the cause is often assumed to be known. The child may then be labelled brain damaged; or parental attitudes may be assumed to be at fault, when neither the one nor the other can be proven. Fortunately, this tendency has lately been offset by the increasingly common use of the general term educationally handicapped or children with learning disturbances, instead of a more specific label, such as neurologically handicapped or emotionally disturbed. The general terms leave open the question of etiology.

Case studies usually reveal that causation is, in fact, most likely to be multiple, and that various causes reinforce each other. For example, parents tend to become anxious, unhappy, and even bitter when they find that their child performs poorly, and their emotional upset in turn causes or aggravates that of the child. The various causes are often difficult to unravel, and their relative weights can often be ascertained only during and not before treatment. When a single cause cannot be found, multiple causation may necessitate multiple treatment approaches.

In public schools, the educator often has to play multiple roles. He may have to help the child to learn through special methods; he may also have to assuage the parents' anxiety, make the child feel worthwhile in spite of his disability, and may even have to be instrumental in getting him accepted in the community. Educators are often unsung heroes, indeed.

As a result of the extent and variety of their responsibilities, educators are usually eager to learn about and to apply the new approaches to the treatment of children with learning difficulties which are developed from time to time. They must, however, be on their guard against accepting any single method as that which will solve their difficulties. No specific and universally applicable method can be regarded as optimal for all children or even for a single diagnostic category, such as neurologically handicapped. Some brain damaged children, for instance, are hyperactive, while others move exceedingly slowly; some are very fearful, while others are daring, aggressive, and sometimes unaware of danger; some show difficulty in disregarding irrelevant stimuli and work best behind a screen, while others are threatened by isolation and respond better to the presence of a teacher and the stimulation of a group; some have unimpaired intelligence, while others are retarded; some can become leaders in society and work as scientists, teachers, or physicians, while others will never be able to live anything but a sheltered life. Therefore, not only does the etiological diagnosis, even when it can be made, tell us little about the necessary educational measures, but also no single, narrowly defined treatment approach is ever sufficient to correct the varied symptoms found in any specific diagnostic category.

The solution to the problem lies in selecting from the range of remedial techniques those which are appropriate for each individual child. This approach has as its goal the exact gearing of methods of treatment to a precise symptomatic diagnosis which is derived from tests and observations. The remedial program is based on individual test results. Every phase of the child's development must be carefully surveyed, and each lag and deficit which needs remediation must be charted. Equally important, the child's assets must also be evaluated, so that they can be utilized in training. An optimum educational program for the child can only be based upon a careful survey of the child's strengths and weaknesses in all developmental areas.

At the Frostig Center, certain measures of the child's developmental status have been found especially valuable for providing information on which to base remedial programs. These tests include the Marianne Frostig Developmental Test of Visual Perception, the Wepman Test of Auditory Discrimination, the Wechsler Intelligence Scale for Children, and the Illinois Test of Psycholinguistic Abilities. It is our practice to chart the results derived from these four basic tests (which cover the areas of perception, language, and higher thought processes), together with an evaluation of the child's sensory motor development.

Using the four basic tests as the foundation, specific training programs have been developed at the Frostig Center for various developmental areas. The Frostig Program for the Development of Visual Perception has been published by Follett Publishing Company of Chicago. The teachers' guide to this program contains a physical education program which is being enlarged and revised. A research draft of a language program based on the ITPA is now being field tested in a large number of public schools throughout the country, and the suggestions of those who have used it will be incorporated into a second version. A program for the development of higher thought processes is still in a preliminary stage.

In addition to concentrating upon training specific abilities in the areas of sensory motor development, language, perception, and higher thought processes, the educational therapist must not neglect to take into account the child's emotional development and social adjustment. The child's achievement in these areas also needs to be carefully evaluated, and the total remedial program used in such a way as to remedy his deficiencies. In practice, training in all developmental areas must be integrated.

We are currently working on a pilot statistical analysis of changes in the four basic test scores achieved by children after a period of special training. Most commonly, training does not affect the areas in which the child tests at a high level but does tend to raise the low areas, so that the child achieves a more even test pattern. To use Gallagher's (in press) term, the child's "developmental imbalance" diminishes, he becomes "more integrated," and this is reflected in both improved behavior and academic achievement.

In summary, I would like to state that the practice of educational therapy is difficult. It involves the identification of a child's specific strengths and weaknesses in all developmental areas, and this requires the ability to observe in a clinical manner, as well as to administer and read the results of standardized tests. It involves the selection and application of specific methods to ameliorate the child's difficulties. It requires the flexibility and creativity to adapt methods to suit the special interests and needs of a particular child and often to construct them from scratch.

I do not believe that any relationship between human beings is ever easy or subject to a unitary prescription. And as with any other relationship, that between the educational therapist and the child with learning difficulties is beneficial to the extent to which there exists respect for individual differences and individual potentialities.

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THE PHOENIX SCHOOL PROJECT—A DAY TREATMENT CENTER FOR RESIDENTIAL TREATMENT CANDIDATES

Herbert Grossman
Henry Fishel

The Phoenix School is a pilot program initiated by the Jewish Board of Guardians in January, 1965, to explore the effectiveness of day treatment as an alternative to residential treatment in the rehabilitation of seriously distrubed, delinquent, adolescent boys with severe school problems.

The project was established to provide information in relation to the following questions: Can 15 to 17 year old adolescents who are seriously disturbed, delinquent, school dropouts, and candidates for residential treatment be rehabilitated while they remain at home? What educational, vocational, therapeutic, and social services do they require? What might be the cost of such a program? What special methods, approaches, and problems might result from an attempt to deal with such adolescents in the community, rather than in a residential setting? What information can be helpful in determining whether a youngster would be better helped in a day treatment or residential treatment center?

Population. Ten Negro and white boys, predominantly from lower class homes, who fulfilled the above criteria, participated in the program for varying periods of time over a span of one and a half years. Six of them were severely retarded in basic educational skills, being four or more years behind in reading and mathematics. They all had lost at least one year of high school credit. They were capable of average or better intellectual functioning, although they did not all achieve at this level on intelligence tests.

Intake. The Jewish Board of Guardians' population of delinquent and disturbed adolescent boys was screened for youngsters who had extremely severe educational problems, were deemed unavailable for orthodox individual psychotherapy, and were potential candidates for residential placement.

Twelve of the youngsters were invited to the school for intake interviews with the staff. In most cases the parents were seen as well. Ten of the boys elected to attend the school; two chose not to attend. None of the applicants were excluded from the program because no criteria for exclusion had been set. All but one of the boys had previously completed a prior intake procedure at the Jewish Board of Guardians, which consisted of psychiatric, psychological, and social evaluations.

Staff. The Phoenix School staff includes: a full time director who had received training as a teacher and clinical psychologist and who had worked in varying capacities in a residential treatment center; a full time academic teacher who had worked previously as a cottage parent and counselor in a residential treatment center; a full time shop and art teacher who, while a professional artist, had been teaching science in a number of schools for emotionally disturbed children; a music teacher with previous experience teaching children in a residential setting, who worked with the boys one half day a week; a half time psychiatric social worker with many years of experience working with children and adults; and a consulting psychiatrist. In addition, a number of students from universities in the metropolitan area spent a few hours a week in the program as part of their course requirements. They were used as remedial tutors and as escorts for students during trips.

Facilities. The Phoenix School is located within a residence club for boys. Facilities utilized by the school include a general shop, offices used for individual instruction and therapeutic interviews, a large classroom, and a gym and recretion room.

Curriculum. Despite the small number of students and staff involved in the project, the staff attempted to provide each student with a program tailored to his needs. The following ninth and tenth grade subjects were included: social studies, general science, earth science, algebra, Spanish, English, world history, biology, and geometry. The shop and art programs were comprised of a variety of activities. Musical instruction was primarily in guitar, piano, and singing. Remedial instruction three or four times a week in each subject disability was an important part of the program. Driver education trips and gym rounded out the formal course work.

Therapy. Although therapeutic services were in a sense a responsibility of the total staff, many of the more specific therapeutic approaches and gambits were in the hands of Phoenix School's social worker. His availability to all the youngsters at all times that he was in the school was stressed. When not actually engaged in interviews with boys, he would circulate among them, chat with them, and make the students aware of his presence and availability. When youngsters found it difficult to deal with a problem in school, or felt burdened by a problem brought from the outside, they knew that they could approach the social worker and he would either talk to them on the spot or soon thereafter.

Parents were seen either on an intensive basis of from time to time, depending on the kind of therapeutic intervention that was possible with them. The social worker visited many of the homes, especially where relatives were unwilling or unable to come to see him. These visits often provided important understandings of the boy's background and home situation.

Other Services. The services of other agencies, both public and private, were utilized to provide the boys with vocational guidance and training. The medical needs of the boys, which were great, were partially met through referrals to persons in private practice. The teenage service of a nearby clinic provided care as well. However, the school's ability to arrange for adequate medical services was hampered by some parents' refusal to cooperate.

It is impossible to describe the program in detail in a paper of this length. However, a brief presentation of some of the staff's major assumptions and techniques should communicate the basic approach of the project. In actuality, no real separation existed between psychotherapeutic and educational endeavors. However, for purposes of this presentation, such a differentiation is made.

Educational Program

Proceeding on the assumption that the youngsters coming to the Phoenix School had an intrinsic desire to learn and grow but had been prevented from doing so in the past, a two pronged educational approach was developed. This consisted of providing them with new opportunities for learning and development, while eliminating as far as possible from the program those environmental factors which had previously prevented them from learning. A number of techniques contributed significantly to enabling the students to commit themselves to a school program.

Fantasy of Nonschool. The students were encouraged upon entering the program to view the school in any way which made them feel comfortable. The physical setting of the school was such that, with the classroom doors shut, the school could look like a recreation center with a pool table and a basketball court. Some of the boys eventually revealed that it was their perception of the school as a nonschool which enabled them to originally enter the program.

Multiple Environments. Two different environments were maintained: a school situation within the classrooms and the shop, and a recreation center elsewhere. The classrooms and the shop were used only when the youngsters were ready to apply themselves to learning tasks and conform to the demands that a learning situation imposed upon them. The recreation area, on the other hand, was a refuge for the boys when they were unable to adjust to the classroom setting. This provided a varied enough program so that the youngster could find something of interest regardless of mood. As one of the boys said, "I come every day because there's no need to cut."

Entrance Activities. Some of the youngsters, who from the outset were less inclined than others to engage themselves in real school work, were able to enter the program by spending part of their day in less traditional school activities. One boy, who had spent most of his truanting days in a poolroom, beguiled much time away in our pool hall until he engaged himself in earnest in a rather full academic program. Another boy, a school phobic youngster, used "accidental painting" and experimentation with a tape recorder as entrance activities. A third student built a table, a bench, and a chair before he accepted the frustrations of a remedial program.

Elimination of Coercion, Pressure, and Bribery. Since many of the boys had acquired a rebellious stance toward adult authorities and perceived school as one of the arenas in which the rebellion had to be made, the staff tried to give them little cause to rebel. The youngsters were not coerced, pressured, or bribed to produce, conform, or attend class. The staff reviewed their own actions and attitudes for signs that they were exerting subtle forms of pressure. Of course, limit setting was necessary, but this was kept to absolute essentials. The goal remained to free the youngsters from external forces which might impede their self-exploration and self-realization.

Elimination of the Symbols of Failure. Since tests, competition among students, and grades often served as symbols of failure for these boys, these symbols were eliminated from the program. Instead, assessments consisted of finding out what a student had or had not learned, or how far he had progressed toward achieving his own goals.

Readiness. The program for each student, as well as for the group as a whole, was modified in relation to the students' readiness. The daily schedule was a good example of this. At the outset of the program, a definite order of work was planned for each day, but the length of the periods depended on student mood and interest. A half hour recreation break was scheduled between classes in the morning and other impromptu breaks were fitted in as necessary. After the boys had been in the program for a few months the periods were assigned definite times and the impromptu breaks were virtually eliminated. Finally, the half hour recreation break was replaced by a fourth class period, and the boys attended classes all morning without a recreation break.

Individualization. Each boy's program was tailored to his individual needs, even if this imposed additional burdens on the staff. Youngsters worked in groups, as in social studies or science classes, only when their educational needs meshed. Each boy was given as much individual instruction as he required to overcome his learning disability. When necessary, college students and other volunteers were brought in to provide this service beyond the staff's ability to do so.

Therapy and Therapeutic Milieu

Informality. All the youngsters at the Phoenix School were afraid of being thought crazy and were frightened of orthodox, psychotherapeutic techniques. This was often one of the reasons why they had been referred to the Phoenix School in the first place. To these boys the idea of sitting across a desk from a "headshrinker" seemed queer and peculiar. The idea that someone could be helped through talk, especially through a formal interview, appeared not only preposterous, but also mysterious and scary. The forbiddingness of the therapeutic situation was diminished by conducting interviews in informal settings. Thus, interviews were conducted in classrooms; in the gym; while sitting on stairs; in motor vehicles; and, most importantly, over food in restaurants. The fact that when an interview is conducted in such a setting much activity goes on around interviewer and interviewee (i.e., other people eating, traffic, people moving) removes much of the intensity. A moment of silence or a pause of even a short duration in an office can be unbearable for these teenagers; but in the settings where these interviews were conducted, the environment fills in.

Weaning and Standing in between. The youngsters at the Phoenix School, although often treated by their parents with hostility or indifference, were especially dependent on these parents and persisted interminably in their attempts to win their affection and approval. Since the parents' attitudes could be modified but little, these youngsters had sooner or later to learn that little could be expected from their parents. In effect, they had to learn to give up their parents and often do more than that, namely, to stop seeing themselves and the world through their parents' eyes. This is difficult to do, as even youngsters who superficially reject their parents are protective of them. Furthermore, the boys had to adopt these new, more realistic views of their parents without reproaching them for what they now knew about them, for otherwise the parent would become even more hostile to them and to the school. Whenever a boy was ready to accept a better understanding of what his parents were like, the staff would talk to him about it in a matter of fact way without value judgment, without condemning anybody, but, instead, with sympathy that his situation should be thus. All students boasted of their supposed independence. Without directly challenging this, we let the boys know that we knew better but simultaneously held up to them the possibility of real independence. The staff could often assist a youngster in his attempt to achieve greater independence by, in effect, standing between him and the parent.

Although most of the parents were capable of gaining but little understanding of what was really transpiring between themselves and their children, they tended to see us as experts and in many cases were willing to comply with our requests. At times the envelopment of the boy was not so much a prime need of the parent, as a defense against the basic neglect of the youngster. Once given permission to remove themselves and absolved from guilt, they could often leave the youngster more or less alone.

Surrogate Parenthood. Many parents in our society will provide their youngsters with everything they need through their teenage years and even later in order to go to school. The parents of most of our boys, for either realistic, financial reasons or on an emotional basis or a combination of both, were unwilling to do this. In effect, this meant that the youngsters' parents did not reward them in any way for going to school, certainly did not pave their way to school, and often made them feel guilty about asking for material support that attending school required. Therefore, the staff as surrogate parents saw to their welfare by providing lunches, carfare, allowances, and other necessities and helped them to work through the guilt about their attendance.

The unwillingness to give to their youngsters was often deeply connected to these parents' hostile and rejecting attitudes toward their sons. Thus, the giving of material things was not only a realistic and practical matter, to them, but one of deep psychological meaning to the students. Giving to them, in effect, helped make up for frustrations experienced during earlier childhood periods when they had been deprived of meaningful expressions of love.

Circumventing Defensive Stances. The youngsters coming to the Phoenix School were highly defended. They had built up walls against becoming aware of their helplessness, dependency, and inadequacy by adopting stances of delinquency, beatnikness, and not caring, which belied their feelings. Since attacking the symptoms inevitably led to greater resistance, the staff concentrated on eliminating the need for the protective stances. For instance, a boy who was actually working on being rehabilitated might be permitted to maintain his beatnik stance without having it directly challenged.

Individualization. The boys were most effectively approached on a one to one basis. Group approaches tended to be ineffective. In a group, the boys had a greater need to maintain their defensive stances, and a tailored approach to them as individuals was more difficult. When seen together, a variety of group forces tended to be mobilized and interfered in the relationship between staff member and student which existed in other situations. However, after considerable treatment, the students started to show signs of being more available to group approaches.

Integration. The Phoenix School's therapeutic approach was characterized by a concerted attempt for each staff member to be constantly aware of what everyone else was doing in order to maintain a unified approach to the total rehabilitation of the youngsters. Clinicians and educators carried on an almost incessant dialogue through which they contributed information to each other which was used to make the decisions which at first glance might seem to belong in the province of one or the other. All staff members attempted to reflect in their individual relationships with the youngsters the therapeutic approach which had been decided upon by the staff as a whole. Thus, in some ways, distinctions between teachers and clinicians fell by the wayside.

Results

Although a true evaluation of the rehabilitative potential of a program such as the Phoenix School should rest heavily upon the performance of the youngsters after they have left the program, certain questions can be tentatively answered from the information available at this point.

1. Would the youngsters participate in the program voluntarily? All of the boys attended the program regularly and were involved therapeutically. This occurred despite their previous expulsions from school and resistances to education and their opposition to more orthodox forms of therapeutic intervention.

2. Could the boys remain in the community without further delinquency? None of the boys had any further difficulty in the courts after they joined the program. In only one case was there any question about a boy's ability to remain in the community without serious consequences.

3. Could these youngsters be rehabilitated while they continued to live at home? The students all remained at home during the program. However, three of the boys' home situations were so disturbed that their rehabilitation might have been helped by removing them from their parents. In these cases the parents were threatened by their child's progress in the program, and they tried to interfere with it. This occurred especially when a parent had a stake in his son's failure, when a youngster ceased responding passively or masochistically toward parental rejection and hostility, or when a boy evinced independence of a parent's engulfment.

4. What kinds of programs and goals are appropriate for these youngsters? Five of the boys were engaged successfully in a fairly full academic program with varying degrees of commitment toward eventual high school graduation. Two other youngsters were guided to vocational training programs. Two boys were successfully contained in a recreation center program with a modicum of remedial education. The final youngster was unable to adjust to any structural setting. The three boys who were not successfully engaged in either an academic or vocational program were the most psychologically damaged and emotionally deprived of the group. Two of these boys were transferred out of the program. It may well be that a program like that offered by the Phoenix School is not a suitable rehabilitative tool for youngsters who have suffered extremely severe emotional deprivation and psychological damage.

The Students

Mickey. Mickey came to the Phoenix School with a long history of stealing, including car theft. He had been unable to adjust to either public, private, or military school, and had stopped attending school altogether. His relationships to his teachers were marked by constant quarrelling and threats of physical violence.

Mickey comes from a very disturbed family and is, in effect, the victim of his parents' sexual conflicts and of the poor relationship which exists between them. Rejecting the father, the mother directs much of her sexual energy toward her children, and especially toward Mickey. There were elements of a boyfriend-girlfriend relationship between mother and son, and this seems to have been deeply resented by the father. At the same time, Mickey seems to have worked out mechanisms whereby he can drive a wedge between the two parents. In this situation the father acted like a jealous suitor. Mickey was hampered in achieving his own independence by the mother's envelopment and probably also by the fact that the father had a strong stake in infantilizing him.

Mickey was also caught in the parents' pretense of middle class goals and values, including higher education for their son, while their real outlook and orientation lay elsewhere. Thus Mickey's parents came to the Phoenix School professing a desire for a change in their son's values and attitudes toward learning, without any basic commitment to such a change.

Marvin. Marvin came to the Phoenix School having committed many burglaries and a car theft. He was boastful of these crimes and especially of his ability to avoid detection for a long time. He had a good scholastic record but had suddenly stopped attending about a year prior to being referred to the school. He blamed his teachers for his truancy, saying that they were mean, unconcerned, and "picky." His mother having died, he lived alone with his father. His father was a gambling man who knew little about what Marvin did and didn't seem to care. Marvin had to fend for himself, as his father provided little supervision and took no steps to see that this son was properly fed and clothed. Marvin claimed that he stole to support himself and that these exploits also permitted him to be a big shot with his friends. Marvin's father was distrustful and denied his son's problems. Marvin, taking his cue from his father, took the same stance.

Stanley. Stanley came to the Phoenix School after his parents had brought him to court because of the ever widening conflict between them and their son. Stanley was reacting intensely to his parents' rejection of him by threatening them, assaulting them, getting drunk, keeping late hours, refusing to go to school, dressing in a bizarre way, and ordering a gun through the mails.

Stanley is a severely disturbed boy who functions on a marginal and probably borderline psychotic level. He was four years behind in reading and mathematics. Instead of attending school, he had a habit of staying up most of the night and sleeping until late in the afternoon. When he arrived for his initial interview at the school, his hair was unkempt and almost down to his shoulders, his face was filthy and unwashed, and he was dressed in black—black shirt, black leather jacket, black high heeled shoes, and skin tight black pants. He said that he didn't want to have anything to do with school or headshrinkers. He did not want anyone to think that he was smart; and if he was going to study anything, it would be one subject only—repairing automobile wiring.

Stanley's father, a very inadequate, physically ill man, seems to have a strong stake in having Stanley fail. The father enlists the mother in his attempts to keep Stanley from maturing, by threatening to leave or die. The mother, a very frightened, rather pathetic individual, is motivated by fear in vacillating between support of either her husband or her son. Stanley managed to complete this constellation by partially conforming to his parents' expectations.

Irving. Irv is a boy who came to the Phoenix School after having been involved in various delinquent activities, including the use of marijuana and the unauthorized use of a car for joy riding. He had stopped attending school and was four years behind in reading and three years behind in math. He had been suspended from school after repeatedly assaulting teachers and peers.

When he came to us, he was frozen in a delinquent stance; he gloried in being "cool", and he despised "squares." He was intensely suspicious and perceived the staff as an extension of the court. He was extremely touchy, self-righteous, and often contemptuous of the staff.

Irv comes from a disturbed household where he was raised by two extremely ineffective and passive parents who are almost totally dominated by the maternal grandmother. Irv's mother is either natively less capable and intelligent than her mother, or else she has been so long dominated by her that she gave up long ago. She married an extremely passive and ineffectual man who has very little strength. Unable to play the role of a real mother, she relates to her children through nagging and quarrelling, often placing herself on a sibling level with them. She is also quite sexually seductive and has little understanding of an appropriate maternal role. The grandmother interferes in almost all activities of the household, holding her power by her aggressiveness, by the constant default of the mother, and by the fact that she makes important financial contributions to the household. In this setup, Irv seems to feel that if his family, his siblings and, of course, he himself are to have any hope he must play a strongly aggressive and supermasculine role.

Jim. Jim was brought to court for stealing. He had been unable to make an adjustment in regular public school or in a 600 school for emotionally disturbed children. Jim is a boy with many problems which have their origin in the disturbed familial relationships of his home. His parents have had a long history of marital conflict, have been separated for several years, and are now divorced. Four of his siblings have at one time or another been hospitalized or referred for residential treatment.

The father is a rather brutal man who used to beat his wife and now treats his children—especially Jim—with physical abuse, much capriciousness, and little understanding. Since physical and emotional abuse take the place of any kind of affection, Jim has some stake in being used in this manner by his father. In effect, a sadomasochistic relationship seems to exist between father and son. At the same time, however, these humiliating attacks provoke rage in Jim and, furthermore, make him become concerned about his own passivity. At times, his feeling that this passivity will engulf him results in panic, and he then strikes out. He has thus wanted to strike at innocent bystanders, even casual passersby. On one occasion while handling a motor vehicle without authorization, he felt that a pedestrian looked like his father and had a momentary urge to run over him.

In addition to considerable brutality in the home, there seems to be poor supervision, a kind of capricious lackadaisicalness in which the father often does not know where the children sleep. The father, once he has gone to sleep in the evening, refuses to open the door for Jim, even though the time may be relatively early. At the same time, the father refuses to let Jim have a key to the apartment.

Sam. Sam came to us after having been suspended and then expelled from school because of bizarre, disruptive behavior and unprovoked attacks on students and teachers. He had been receiving a few hours of home instruction each week but was six years behind in reading and five years behind in math. His severely limited ability to use his intellectual potential in formal learning situations was reflected in his borderline intelligence quotient. He had been rejected by a number of residential treatment centers because they felt he was too disturbed or considered him brain damaged.

Sam had been treated as an outpatient with little success for four years and had been excluded from group therapy as a disturbing influence. He has such an extremely low tolerance for frustration and such intense fear of failure that he either avoids or tries to destroy the frustration or the challenge by bizarre, uncontrolled, and at time dangerous behavior. Sam has a history of accident proneness, including being run over by a car when he was 10. At times he seems to have sudden, almost seizurelike head and neck aches and at other times has difficulty swallowing. However, neurological studies have turned up no evidence of brain damage.

Sam's mother seems quite openly psychotic, and little is known about his father. He comes from a very deprived home and lives together with eight brothers and sisters under very primitive conditions. He is in despair because he is intensely aware of the world at large and feels that he is forever barred from it by his color, his size, his poverty, his inability to learn, and his doubts that he can ever be part of the mainstream of society.

Charlie. Charlie came to the Phoenix as a last resort. He had been pushed ahead from grade to grade without ever completing the work. He had a long history of failure, truancy, disruptive behavior, arguing with teachers, fighting with peers, and impulsive violent outbursts. Charlie was four years behind in reading and five years behind in math; he knew very little of the things that people learn in school. Everyone was convinced that he was engaged in many delinquent activities, although he had never been caught. Charlie had an orientation towards life in which he used people for his own ends, employing manipulative and devious techniques.

He is a boy who comes from a severely disturbed family. His parents have strong aspirations to belong to the middle class—a status which they have never quite reached. They are childish people who apparently never were really ready to carry the responsibilities of parenthood. On the surface, the parents (especially the mother) have babied Charlie; but actually there exists a pattern of rejection and narcissistic self-preoccupation, with much deprivation from babyhood on. Charlie experienced few personal relations which were satisfying, or even relationships in which cause and consequences made much sense. He discovered early in life that, by playing the stereotype of the aggressive, vicious Negro to the hilt, he could frighten people. He had thus made it extremely difficult for anyone to work with him.

Danny. Danny came to the Phoenix School after he had been caught committing a burglary and after having been involved in the sexual fondling of a young girl. He lived with an openly psychotic mother in what amounted to a folie-a-deux relationship. The mother, a very bizarre woman, conducted a peculiar household in which garbage was kept in the refrigerator and clothes, some dating back decades, were piled all over her room and bed. Curiously enough, this menage was located in a good neighborhood right next door to a very exclusive one. Since his early years, therefore, Danny had lived with, played with, and gone to school with peers who came not only from far more adequate parents but often from eminently successful ones.

Despite the fact that the mother lived on a $35 weekly allowance which she received from the separated father, she helped Danny pretend that his aspirations could have the sky as their limit. Thus he believed seriously that he would be able to earn a Ph.D in electrical engineering even though he was five years behind in reading and arithmetic, had failed in the 600 schools (special schools for emotionally disturbed children), and had been suspended from the public school system. These pretensions were coupled with a gnawing fear that he would end up as a bum in the Bowery.

Although Danny was aware of his mother's inadequacies, his involvement with her was enormous. Her psychosis in many ways enveloped him; and she fostered their close connection by letting him know that, if he didn't stay with her and live her kind of life, she would be hospitalized or even die.

Harold. Harold came to the Phoenix School after he was apprehended subsequent to having stolen lamps from a large department store. Prior to this he had been seen by three agencies and suspended from two schools. He could not pronounce or hear certain sounds, had repeatedly failed in school, and was four years behind in reading and math.

Harold had been brought up by very limited, quite empty parents. He had always been considered peculiar by the mother, and his parents made their preference for the older brother obvious. A neurological examination did not reveal any gross evidence of brain damage but showed some slight evidence of brain abnormality of the kind which is sometimes associated with learning and personality disorders. What is likely here is that Harold was just different enough from the average for his very primitive parents not to be able to cope with him from babyhood on.

His approach to life was almost entirely sadomasochistic. He was constantly preoccupied with hurting and being hurt. His masochism is exemplified by the fact that he was caught stealing stamps on his birthday, although he had previously been successful in similar thefts. When later asked about this, he said that on this occasion he had an urge to walk away from the counter where he had committed the theft slowly and openly, rather than to employ stealth as he had previously. Harold had a strong need to be punished and incessantly arranged situations which resulted in retaliation and rejection. Harold was obese, awkward, a poor dresser, argumentative, and always all over the place. He had a way of touching people which made them feel uncomfortable and imposed upon.

Marty. Marty was brought to court by his mother, as she felt that she could no longer handle him. Marty spent most of his time in pool halls, gambled constantly, stayed out late at night, and refused to go to school. He was depressed, spoke of never reaching age thirty, and felt that life was empty and valueless. Marty comes from an upset family situation where he lives without a father (he has never known him) and with a passive and disturbed mother. The household also includes a senile great uncle and a senile grandmother who is in charge of the home and has always thought of Marty as her own child.

Marty correctly perceived that the adults surrounding him were extremely inadequate people and that his home was gloomy, empty, and joyless; and he feared that this might be all that life would ever have to offer him. He generalized from his family to the world at large, thinking of all adults as old and inefficient. Thus, for instance, he thought of all staff as being a decade older than they really were. After a brief marriage, Marty's mother left her husband, who was a pool hall operator. She is convinced that Marty will inevitably turn out like his father. Marty apparently plays the role that his mother has attributed to him. Thus he practically lived in pool halls, gambled, and tried to play in a rather pitiful way the role of the big shot gambler and man about town.

PHYSICAL EDUCATION THERAPY

Robert L. Kariger

The occupation of childhood is play. Through all types of play involvement, each child learns about himself and the world about him. This physical activity is the basis for all growth and development. Physical training has not been proportionately incorporated into programs designated for neurologically handicapped children. It has received, usually, only minimal treatment. Literature abounds with countless references to the importance and value of natural motor development. Yet, these children have been expected to meet the requirements of everyday life without the physical assets necessary. Therefore, the materials used in remedial classes and educationally handicapped classes are very convenient. They can be mimeographed and used as seat work while the teacher conducts a reading group or helps another child. Hyperactive children consume quantities of such materials, and some gains are made. The problem is that large motor, total body learning is bypassed. The basic fact to which educators have been exposed, that gross motor learning must precede fine motor activity, seems to be unrecognized in this situation. Many pupils come for individual, educational therapy feeling deeply inadequate, defensive, and discouraged because they have been trying to sit at a desk and perform fine motor tasks when they have not had the preliminary gross motor experience basic to the task. They have not received the "C", star, or smiling face or had their paper put on the bulletin board, all of which are indicative of success. This vitally important physical learning experience must not continue to be neglected.

For a one year period, a program of physical education therapy was presented to twenty-four male students, classified as brain damaged and ranging in age from four to thirteen years old. The majority of the students, however, were from six to nine years of age. All students had been in the program at least three months, with most of the students in the program six months or longer. Whenever possible, this program was closely correlated with that of the educational therapist tutoring most of the same children.

Each child was in physical education therapy for two, one hour sessions each week. The first weekly meeting was instructional in nature, and the needed techniques of motion were repetitiously performed. These groups were kept to a maximum of four students. The alternate weekly period was spent in vigorous activities and a wide variety of game situations. The activities used were carefully chosen so as to be within the performance capabilities of the entire group. These groups ranged in size from six to ten pupils.

The primary step, in physical education therapy, was to assess each child's physical performance. This was a lengthy process and was usually not completed until the child had participated in the group four or five times. The objective was to observe the child in those activities which all children must learn. Activities included in the assessment were very general and designed primarily to produce total body responses. Isolated muscle performances were included in the program after large muscle activities were satisfactorily demonstrated.

The Assessment

All activities were first demonstrated and fully explained before they were attempted by the child. In all instances, the child did not have to perform if he was unsure or fearful.

Walking. Each child was required to walk forward, backward, and sideways. After observing the child's natural posture in moving in all directions, the heel and toe pattern was performed in walking forward and backward. Both the crossover step and the step and slide together patterns were used as the child moved to each side.

Hanging and Climbing. Each child was observed in climbing and hanging on playground equipment, in a tree, or on some other suitable climbing apparatus. Both climbing up and climbing down were required. Also the child was asked to hang and then drop to the ground.

Movement on All Fours. Each child was directed to use the cross pattern as well as the unilateral pattern of arm and leg movements. With the knees and hands in contact with the floor, the child was asked to maneuver over, under, and around specific objects.

Running. Each child was requested to run in an explosive burst for ten yards.

Throwing. Each child was requested to perform throwing large and small balls. They were to throw with both hands simultaneously and to throw with one hand overhand and underhand.

Catching. From a distance of about ten feet, each child was asked to catch balls thrown so they had to be caught above and below the eye level. Balls also were thrown to both sides of the performer. Again, large and small balls were used.

Twisting. Each child was presented with the task of executing turns of 90, 180, 270, and 360 degrees. These turns were to be performed in each direction if possible.

Kicking. Each child was asked to kick a ball that was lying stationary on the floor, a ball rolling toward him, a ball traversing his path in front of him, and a ball that he dropped out of his own hands to be kicked before it touched the floor.

Jumping. This is the same as two footed hopping. The child executed these jumps forward, backward, and sideways. The feet were required to be kept together at all times. Five jumps in any one direction were all that were required.

Hopping. The child was asked to hop five times on each foot. If this was achieved quite easily, the child was then asked to demonstrate alternate hopping first on one foot and then the other.

Skipping.

Toe Walking.

Heel Walking.

Side Straddle Jumps (jumping jacks). Each child was asked to execute five of these exercises, all with the same rhythm.

Toe Touches. Each child was asked to bend down and touch the toes without bending the knees.

Abdominal curls (bent knees). Each child was asked to perform ten curls in rapid succession.

Balancing. The child was first asked to stand with his feet together and his eyes open, then with his eyes shut. Next he was instructed to stand on one foot with his arms extended to the sides and his eyes open one time and shut the next time. The child was then asked to walk a three inch wide balance beam with his arms free and his body in as natural a walking posture as possible. The child was also asked to walk the balance board backward.

Swinging Ball. A ball suspended on a piece of string was moved in various directions in front of the child, and he was asked to follow it with both eyes. Sometimes the head was allowed to move; in other demonstrations the head was stationary.

Forward Roll.

Side Rolling. Each child was asked to execute side rolls to both sides of the body. The arms were required to be kept extended fully above the head.

Trunk Raises. While in the prone position on a mat, with a pillow under the hips, and feet securely held down, each child was to raise his head and trunk as high as possible.

Leg Raises. This was accomplished while in the prone position, a pillow under the hips, and the chest held down firmly. The child was asked to raise his feet as high as possible without bending his knees.

Leg Lifts. In the supine position, the child was instructed to lift his legs about six inches and hold them there for three counts. This exercise was repeated five times.

Rope Patterns. A rope was thrown out on the floor so that it crossed itself three or more times. The child was instructed to walk from one end of the rope to the other, without making a wrong turn or taking the wrong path. The rope was also laid out in a zigzag pattern so that the child was required to move through the pattern rapidly, without stepping on any part of the rope. Next, the rope was placed in a series of loops to make the child stretch and transfer body weight from side to side while placing his feet in the loops.

Unilateral, Bilateral, and Crosslateral Arm and Leg Movements. These movements were performed with the student in the supine as well as the standing posture.

Foot Dominance. This was determined through observing one foot balancing, kicking a ball, and side movement execution by the child. Also, through conversations with the child and his parents, more information was gained.

Hand Dominance. This was ascertained by observing the child in throwing, picking up objects, and side movement execution. Also, conversations with the child and his parents proved beneficial.

Eye Dominance. Best determined by reviewing medical reports.

After the assessment had been completed and the child had been in class four or five times, a conference was held with the parents. Also, a conference was held with any teachers or other persons directly involved in helping the child. Complete reviews of all medical information, psychological reports, and educational testing data were completed. As a result of the assessment and the concurrent information gathered, the child was placed in a working group. This placement was based primarily on the age and level of the physical performance of the child. In one case, it was absolutely necessary to work with the child on an individual basis only. However, the goal is always to get the child into a group as soon as possible.

There was no complete and established sequence of activities presented that was satisfactory for each group. The program for each group and individual within the group was compiled separately in accordance with the established need. The scope and range of activities presented encompassed a great variety of movements. The activities selected were those which are most commonly associated with childhood.

There were, however, specific areas which were included in each group because they were considered to be basic to all movements of the body. These were the trunk raises, leg raises, toe touches, and specific gymnastic maneuvers, which were all designed to increase the strength and flexibility of the pelvic area. These activities were introduced to each group as being preliminary to all further motor involvement.

The program was further patterned to teach the NH child the skills necessary for success in primary academic learnings. An example is the performance of sequential motor tasks, which have definite implications for both reading and mathematics. Better body awareness was promoted through the use of numerical understanding, based on the numbers of body parts, such as ten fingers, two eyes, two ears, etc. The improper perception of position in space and laterality, which may produce the reversals of letters and numbers often troublesome to NH children, was dealt with through balancing activities and a heightened awareness of the opposite sides of the body. Numbers and colors were incorporated as part of numerous natural play situations. Verbal expressions were encouraged in an atmosphere of pleasant activities where the child was achieving success. Each child was provided with some measure of success and praise at every session. This was a challenge which was difficult to always achieve, yet it was felt to be of vital importance.

When introducing a new experience, the following technique was employed and proved to be very successful. The child was confronted with repeated instructions and demonstrations. Then he was carefully manipulated through the desired action until it was determined that his muscles were trying to help perform the correct movement. At this point the child was asked to shut his eyes and pretend he saw himself executing the particular movement. The entire movement was gone over verbally with the child, as he tried to visualize what he heard. As this verbalizing was taking place, the various parts of the body necessary to complete the movement were touched and moved slightly. The child was asked if he could see himself executing the activity. When the child indicated that he understood, he was instructed to execute the movement immediately upon opening his eyes. If any hesitation or incorrect motion occurred, the entire process was repeated immediately.

The results of the program were compiled from reports and questionnaires from parents, educational therapists, school teachers, and the medical profession. Also, my observations were recorded and included.

For the first time these children were experiencing continued successes in a variety of activities. The realization that success was not foreign to them, as it had previously been in all physical endeavors, was the springboard from which many exciting developments were launched. There were demonstrations of self-reliance, determination, confidence, and a desire to accomplish—traits heretofore absent. These highly important attitude changes promoted contentment and happiness in the child and increased his performance in correlated learnings.

Family relationships began to take on new dimensions, especially the father-son relations. The father could now engage in activities with his son, and the child could respond favorably. Previously, the impatience demonstrated by the father toward the boy, who could not meet the standards expected, made the child want to give up and withdraw from all activity. This attitude was then to become prevalent in all phases of the child's life. The happier and healthier relationship that was being established could only serve to benefit the child tremendously. This alone is a solid testament as to the value and need for physical education therapy.

Through physical involvement in a wide variety of activities, the child was learning about the body, its parts, and how each functions. This necessary body awareness was important to future learning and seemed deeply related to improving perceptual skills.

A very prominent key to success was that of repetition. Although it is a sometimes tedious and time consuming undertaking, it provides the desirable results. The only cautionary measure is not to pursue a specific area for an extended period of time. Involve the child in the activity time and again but at different periods. One must not repeat an activity until the frustrations of boredom and defeat appear. The experienced instructor knows when the child has given his best. At this point the activity is terminated and returned to later or in the next lesson. But it must be comprehended that the neurological pathways must constantly be bombarded until the correct patterns are established.

The need for good flexibility and strength, especially in the pelvic region, was indicated to be of great importance. Only as this was achieved did the child realize satisfactory advancements in the large muscle responses of the body. There seemed to be a general absence of strength and flexibility of the pelvic area in the majority of the children. It cannot be expected that a child will demonstrate adequate poise and grace if there is a rigidity which forbids supple movements.

The unnecessary confusion which results from totally incorrect responses to new experiences can be minimized by the visualization technique. The child must be fortified with many demonstrations and instructions to provide him with as complete an understanding of exactly what is expected of him as possible. The more the child is prepared to perform a newly introduced movement, the fewer the amount of incorrect or unnecessary actions to remedy.

The accomplishment of numerous large muscle activities showed a corresponding development in the child's fine motor responses. This was evident in the improvement in his ability to write and draw, for instance.

Children learn on plateaus. There are dormant periods when all progress seems terminated and further involvement useless. This is the point where the resourcefulness of the instructor, to maintain the student's interest and enthusiasm, is challenged. Since the duration of these learning plateaus varies from child to child, patience must persist. Suddenly, though, there is an accelerated breakthrough and the child makes great strides. This success provides the impetus necessary to commence the next learning plateau, where success again may be immediate or a hardwon achievement.

The degree of proficiency required in the execution of each activity was difficult to satisfactorily ascertain. Experience was the best method for determining when an activity had been suitably performed. Generally, though, each activity should be performed with relative grace, poise, and continuity; and it should be void of all unnecessary abortive or uncoordinated actions.

Relating to the group and group activities provided many new and valuable experience. Such things as taking turns and waiting quietly to do so were quite a challenge in self-control. The child learned an important lesson in responsibility through the satisfaction of knowing that others were dependent upon him and his actions. But most important, the child learned how to give and take, win and lose, follow directions, and experiment with his place in society freely.

Too often adults lose sight of the importance of school recess activities. To be excluded, for one reason or another, from this phase of school seems to take on a prominence not previously appreciated. As each child was accepted into recess activities, the corresponding boost in ego and morale was transmitted to his classroom work. This seemed to be partly responsible for improved relations and achievements in school. There was present a correlation between improved motor performance and improved academic achievements.

Each child learned an indeterminable amount from every movement performed. The complexities of body movements require that numerous and varied experiences be performed to provide a wide foundation from which the body may engage in all types of learning in life.

Play is basic and inherent in all children. Children abound with a natural energy provided by nature for them to actively engage in countless play situations. This has been included because the basic foundation for all performance and learning is motor development. Without the necessary motor control and coordination, intellectual activity becomes restricted or inadequate.

The desire to play is very prevalent in the neurologically handicapped child. But the necessary channels to successfully engage are disrupted. For example, all of these children want to play catch with a ball. But the visual perception and motor involvement necessary for a correct response in this endeavor cannot be successfully called into play. Instead of a satisfactory experience, there develops a fear of injury from being hit with the ball. This can further be illustrated by the fear associated with climbing. It must be a harrowing experience not to be able to estimate the distance from one's elevated position to the ground. The resulting problems, if left alone, can attain disastrous proportions and become insurmountable.

Every child wants to belong. Neurologically handicapped children find it difficult to gain acceptance because of their physical inadequacies. These children must not be left alone to miss out on the most natural element of human nature.

It is increasingly difficult to locate suitable play areas because of the multitude of concrete and steel monsters which occupy the land. Therefore, if there are physical complications, one can readily observe that without expert guidance and instruction the problem becomes extremely complex. These children must be provided with the opportunity to embrace life to its fullest. This is why physical education therapy is of such vital importance.

It should be emphasized that physical education therapy is not a complete entity in itself. But it should be an integral part of any problem designed for the exceptional child. A coordinated effort, with a close working relationship of all persons involved in helping a particular child, is the most beneficial approach. The body is extremely complex, a mechanism possessive of many interworking relationships, one dependent upon the other. Therefore, a total program for the total body must be presented. The contributions of physical education therapy must be an initial consideration in this program.

RESEARCH STUDIES IN PSYCHOLINGUISTIC DISABILITIES

Samuel A. Kirk
John McLeod

In his 1954 presidential address to the American Psychological Association, Mowrer (1954) commented on the neglect by psychologists of the study of language, which he found "especially remarkable when one considers how much of the waking life of human beings is spent in talking, listening, writing, reading, or using the subvocal equivalents thereof in thinking."

It is perhaps even more remarkable that this neglect carried over into the psychology of exceptional children, because the function of language is the facilitation of communication. And the problems of most children with learning disabilities can be interpreted as a breakdown or malfunctioning of communication.

Perhaps the neglect was, in part, due to difficulties of assessment. Intelligence and personality were more easily quantifiable and measurable—or rather, it has been relatively easy to construct tests of what we have been pleased to call intelligence, anxiety, need achievement, and other intangibles. We have, furthermore, enjoyed the illusion that we have been able to measure these things. On the other hand, it has not seemed as feasible to measure language. What is there to measure? How long is a consonant? In what units can we measure words or sentences? These and many other questions have made the measurement of language or language development very difficult.

Linguists have, of course, been concerned with the structure of language for a long time, but not with language as a correlate of behavior. Psychologists, certainly since the time of Galton and Wundt, have recognized the fundamental significance of verbal behavior for the understanding of behavior in general. But psycholinguistics, which represents a fusion of linguistics and the psychology of human communication, is a branch of science whose origins date back only to 1951, when an interuniversity seminar was convened at Cornell.

The advent of psycholinguistics has led to some modification in the behavioral, psychological concept of the individual, who has been elevated from the status of a black box locked between stimulus and response to that of a channel of communication. This might not sound to have enhanced his dignity in any revolutionary way, but from conceiving of the human organism as a transmitter of information has stemmed the important consequence of more discriminating analyses of the processes which are involved when information is transmitted.

First, it has perhaps inevitably produced attempts to apply the sophisticated measuring techniques of the communication engineers—information theory—to the quantitative description of human behavior. The second consequence has been a more discriminating analysis of the processes which are involved when information is transmitted by an individual. First, the incoming message has to be decoded, then there has to be some internal processing, and finally the outgoing message has to be encoded. Such an analysis, in a behavioral psychological context, is the one which Charles Osgood (1957) developed.

The present paper will deal with the development of the Illinois Test of Psycholinguistic Abilities. This development represents in part an attempt to translate theoretical constructs to the development of a practical clinical procedure for the diagnosis and remediation of psycholinguistic disorders in children. These disorders, as research evidence about to be summarized will indicate, appear to be particularly significant in some phases of learning disabilities.

Immediately prior to the period when all this merging of concepts was taking place in 1949 we were conducting an experiment on the effects of preschool education on young mentally retarded children (Kirk, 1958). It was during this period when we came face to face with many young children who needed evaluation and diagnosis, in order to establish an educational program for them. Among the group was found a number of children who were mentally retarded but who had other major disabilities, such as language disorders, perceptual disorders, and behavior disorders.

Like many clinicians, we made an informal diagnosis, since no adequate tests apart from general intelligence tests were available for the evaluation of the language ability of these children. The only preschool language test which was available at that time was the Van Alystyne Picture Vocabulary Test which consisted of a picture identification test with norms for children between the ages of two and four and one-half. This test was of limited value for diagnosing difficulties in children for the purpose of organizing remedial programs and for evaluating the language development of these children over a range of years.

Adopting usual clinical procedure, we analyzed data from tests such as the Binet, the Kuhlmann, and the Vineland Social Maturity Scale and also made observations concerning the children's behavior. Our diagnostic tools were cleary inadequate. One girl, for instance, had been diagnosed as not only mentally retarded, but also legally blind. She had marked nystagmus but could see and recognize pictures if we gave her sufficient time. Special tutoring for the purpose of increasing speed of perception in spite of the nystagmus led to marked improvement in her visual perception, and there was also a marked improvement in intelligence test scores (Kirk, 1958). Another child had been diagnosed as a sensory aphasic with a Binet IQ of 37. Special training in auditory decoding resulted in a marked improvement in this child (Kirk, 1958). Other cases in the preschool demonstrated quite clearly the need for an analytical diagnostic test which would help to pinpoint specific disabilities in these children for which special educational programs could be organized.

It was at this time (1949-1950) that the origins of what ultimately became the Illinois Test of Psycholinguistic Abilities were initiated. Several attempts were made to develop language and perceptual tests for these children. The original attempt consisted of a method of evaluating receptive language; attempts were also made to measure expressive language, reducing receptive or decoding skills to a minimum. Numerous attempts were made to develop a clinical diagnostic test that would assist in the evaluation of these children, but these were unsuccessful because we did not have a theoretical model upon which to construct a comprehensive examination.

Several years later, Professor Charles Osgood at the Institute of Communication of the University of Illinois organized a course on experimental communication processes. The senior author audited this course in order to obtain the rationale for a language model. In this course, professor Osgood was developing his generalized behavioral model which (over simplifying) cross classified behavior according to: (a) process—decoding, association, and encoding, (b) organizational levels—in particular, the integrative (perceptual and motor integration) and representational (symbolic processes), and (c) channel—visual and auditory sense modalities and vocal and motor expression.

The following year, Dorothy Sievers, then an advanced graduate student, was enrolled in this course for the purpose of studying the model and organizing research which would lead to a diagnostic examination. With the aid of the staff and other graduate students Dorothy Sievers developed a number of tests on the lines of the Osgood model. Several hundred children below the age of six were examined with these tests, resulting in a doctoral dissertation by Dorothy Sievers (1957) entitled "A Language Facility Test."

To assess the clinical value of this test, James McCarthy used the battery of tests developed by Sievers to examine athetoid and spastic cerebral palsied children in Dr. Perlstein's clinic in Chicago. McCarthy found that the general rationale of this test was useful, but that each test in the battery was contaminated by other factors and could not, therefore, pinpoint abilities and disabilities as we should like. For example, the labelling test in Sievers' original battery require both visual reception and vocal response.

It was decided, therefore, that a new test should be devised which would try to isolate specific skills and which would also include certain kinds of functions, such as visual sequential memory and auditory sequential memory—digit span—which clinical experience suggested to be of value. These had not been included in the original Osgood model, but it was felt that a combination of theoretical model and empirical evidence should be used to evolve a clinical model from which tests could be generated.

Three years of work trying out many tests narrowed down the range that could be included in a battery. One of the major difficulties encountered was in developing tests that can be used with two and three year old children. The ordinary digit repetition test, for example, as administered in the revised Binet and WISC, could not be used very successfully with very young children, and , furthermore, it did not discriminate adequately between children at each chronological age level. In order to overcome these difficulties, we did two things. One modification in procedure that was introduced was to give the child a second chance with each sequence of digits if he failed on the first attempt. Also, the time interval between digits was reduced. Instead of using one second between each digit as is the case with the Binet, we found that younger children could repeat the digits if we presented them at half second intervals. By using these two variations in technique, we were able to develop an auditory sequential test which discriminated between children in different age groups.

At this stage in the development of our work, it was decided that, rather than undertake another five years of developmental research on the tests in order to refine them still further, they should be standardized and published as an experimental edition, so that their general usefulness and validity could be evaluated. The nine most successful tests were therefore standardized for children between the ages of two and nine, and so the experimental edition of the Illinois Test of Psycholinguistic Abilities was published in the summer of 1961.

CLINICAL MODEL OF THE COMMUNICATION PROCESS

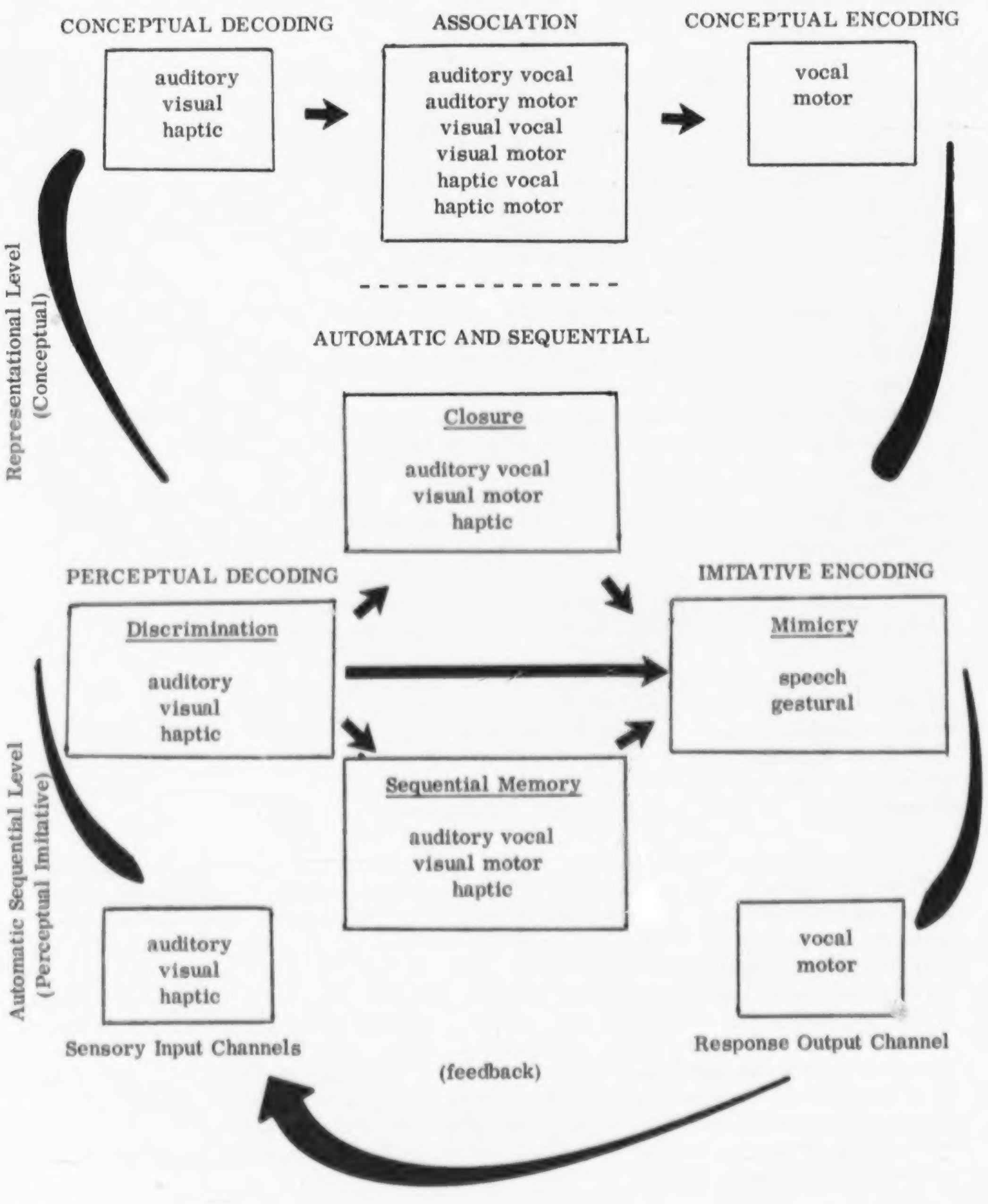

CONCEPTUAL DECODING
auditory
visual
haptic
ASSOCIATION
auditory vocal
auditory motor
visual vocal
visual motor
haptic vocal
haptic motor
CONCEPTUAL ENCODING
vocal
motor
Representational Level
(Conceptual)
AUTOMATIC AND SEQUENTIAL
Closure
auditory vocal
visual motor
haptic
PERCEPTUAL DECODING
Discrimination
auditory
visual
haptic
IMITATIVE ENCODING
Mimicry
speech
gestural
Sequential Memory
auditory vocal
visual motor
haptic
Automatic Sequential Level
(Perceptual Imitative)
auditory
visual
haptic
Sensory Input Channels
vocal
motor
Response Output Channel
(feedback)

Figure 1

Since it became available to other researchers, the ITPA has become very widely used in the United States, the United Kingdom, Australia, and New Zealand. Many clinics and schools are using the test for clinical purposes and much research has been conducted at the Institute as well as in other parts of the country and in the various countries mentioned. There have been a great number of doctoral theses completed which have used the ITPA, and, if it has done nothing else, the test has at least opened up avenues of research for many who are interested in this area.

Summary of Selected Research Findings

Bateman (1965) has reviewed the research studies up to June, 1965; but like most publications in a rapidly changing world, this review became outdated almost as soon as it was off the press, due to additional studies. We will try to summarize only a few of the studies that have been made but which give a representative sampling of some solvent points that have emerged.

Special Reading Disabilities. Several studies have been made on the relationship of the ITPA or some of its subtests to reading disabilities. Corrine Kass (1966) found that there was a relationship between difficulty in learning to read and performance tests at the automatic sequential level including perceptual speed, closure, etc. The profile of Dr. Kass' findings is reproduced here to indicate the difference between the automatic sequential and representational level for children who are retarded in reading during the early grades.

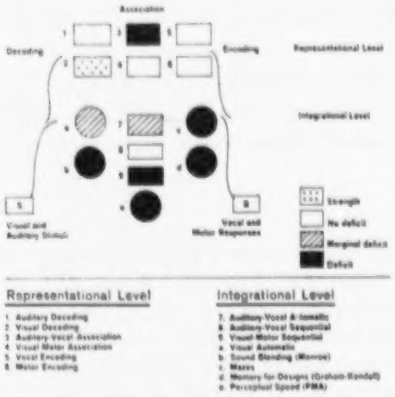

Association
Decoding
Encoding
Representational Level
Integrational Level
1
2
3
4
5
6
7
8
9
a
b
c
d
e
S
R
Visual and Auditory Stimuli
Vocal and Motor Responses
Strength
No deficit
Marginal deficit
Deficit
Representational Level
1 Auditory Decoding
2 Visual Decoding
3 Auditory-Vocal Association
4 Visual-Motor Association
5 Vocal Encoding
6 Motor Encoding
Integrational Level
7. Auditory-Vocal Automatic
8 Auditory-Vocal Sequential
9 Visual-Motor Sequential
a Visual Automatic
b Sound Blending (Monroe)
c Mazes
d Memory for Designs (Graham-Kendall)
e Perceptual Speed (PMA)

Figure 2

Clinical Model of Reading Processes Indicating Areas of Strength, No Deficit, Marginal Deficit, and Deficit

(Source: Kass, Corrine, E. Some psychological correlates of severe reading disability (dyslexia). Unpublished doctoral dissertation, University of Illinois, 1962.)

Other studies by Ragland (1964) and by Mc Leod (1965) also indicate the value of the ITPA, particularly at the automatic sequential level, for the diagnosis of reading disability.

Speech Disorders. Ferrier (1963) and Foster (1963) conducted independent studies on the relationship of subtests of the ITPA to articulation disorders among school children. Both Ferrier and Foster showed that the relationship was in the automatic sequential, rather than the representational, level. Figure 3 shows this relationship.

Mental Retardation. A number of studies and information appear to indicate that mentally retarded children, too, have lower scores on sequential memory (short term memory) than at the representational level. These graphs indicate that mentally retarded children as a whole seem to be substantially defective in short term memory and at the automatic sequential level, as compared to their representational level.

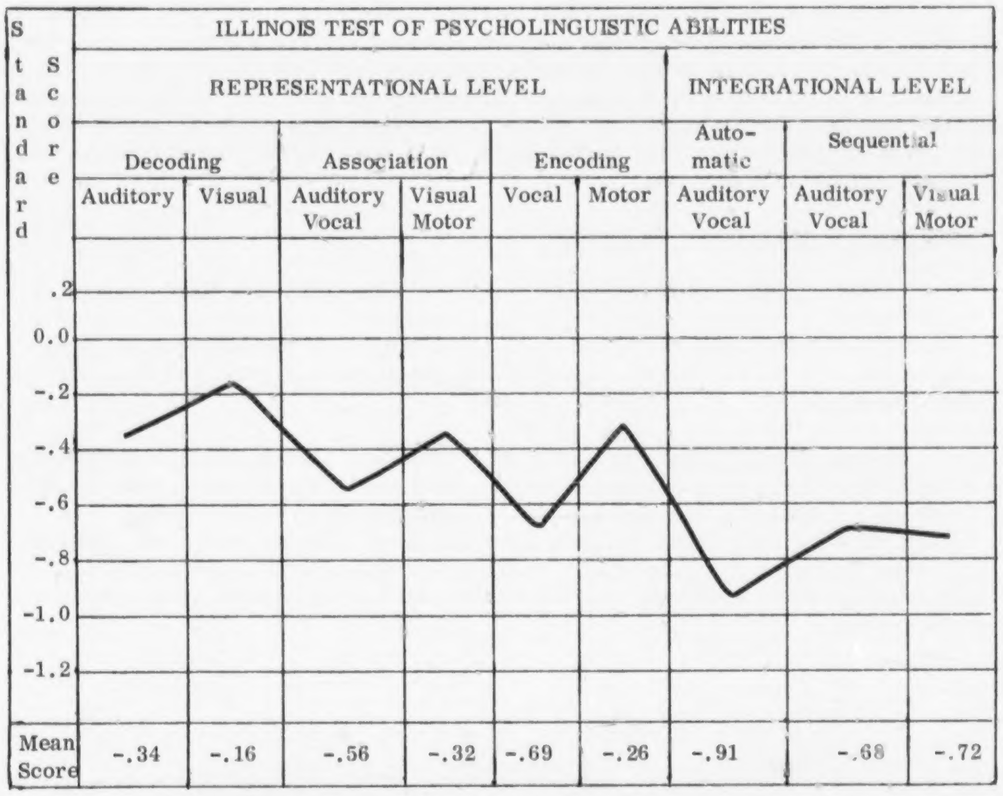


Figure 3. ITPA Profile of Total Sample—Articulation Disorders ($\underline{N}$ = 40)

(Source: Ferrier, A. An investigation of psycholinguistic factors associated with functional defects of articulation. Unpublished doctoral dissertation, University of Illinois, 1963.)

Disadvantaged Children. The ITPA has been used quite extensively in preschool programs for disadvantaged children. Ryckman studied 50 Negro children from middle class areas and compared them with Negro children from lower socioeconomic levels. It will be noticed in Figure 4 that the Negro children from middle class areas show approximately the same profile as the standardization norm, whereas the Negro children from lower socioeconomic levels show a substantial lowering of the graph on all points. It should be noticed here, however, that there is no depression of the automatic sequential level as compared to the representational level for these children, as is shown repeatedly with mentally retarded children, even though the lower socioeconomic Negro children probably had lower IQ's.

Mongoloid Children. Two studies have been made with mongoloid children. Figure 5 indicates quite clearly that mongoloid children, as compared to nonmongoloid children in classes for trainable children, have a superiority on the motor encoding test and a slight depression on the auditory vocal automatic test, which involves syntax and grammar. Similar findings were obtained by David Bilovsky and Jack Share (1965). Bilovsky and Share did not compare the mongoloid children with others but found that the mongoloid children were superior in motor encoding in comparison with their other abilities.

It will be noticed in Figure 5 that the automatic sequential level for both the nonmongoloids and the mongoloid trainable children was below the representational level. Bilovsky's graph also shows a marked discrepancy between the automatic sequential level and the representational level for his group of mongoloid children, with greatest superiority in the motor encoding area.

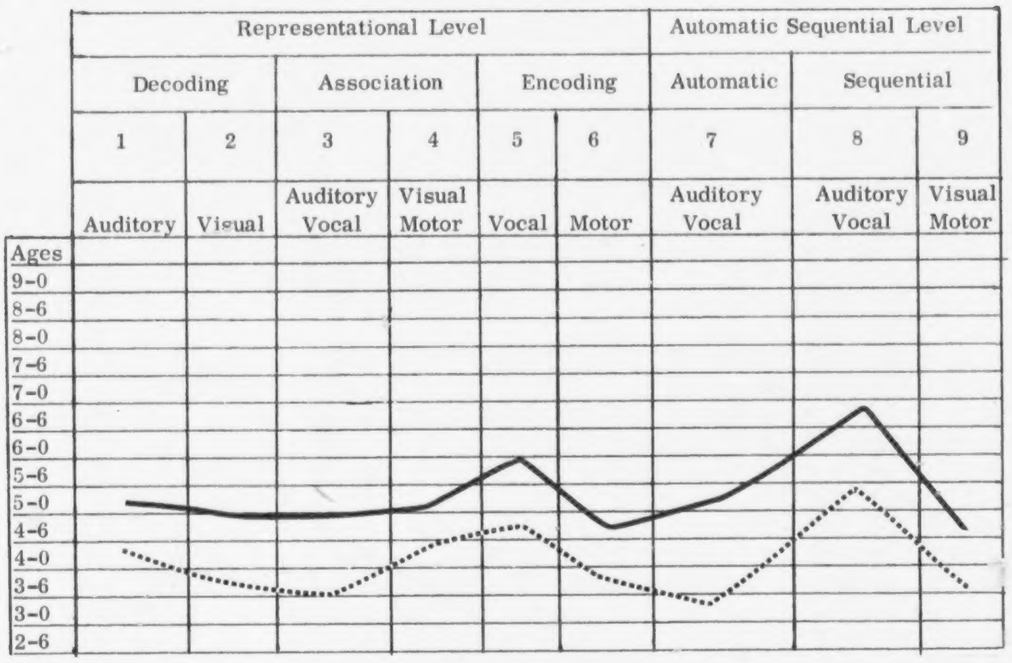


Figure 4

Group CA = 5-5

———— Middle Class
.... Lower Class

(Source: Ryckman, D. The psychological processes of disadvantaged children. Unpublished doctoral dissertation, University of Illinois, June, 1966.)

Cerebral Palsy. Two studies were made on athetoid and spastic cerebral palsied children by James McCarthy (1957) and by Patricia Meyer (1963). It was shown by these authors that there was a difference between athetoid and spastic children on subtests of the ITPA.

The foregoing summary represents some of the diagnostic studies which have attempted to define some of the characteristics of the different clinical types. It is not a complete list, but time does not permit a more exhaustive review.

Effects of Remediation

There have been more reported studies on the diagnostic side than there have been on remediation based on the ITPA, but those remediation studies that have been carried out suggest that there are gounds for optimism that psycholinguistic disabilities can often be ameliorated. We have accumulated a substantial group of idiographic type research in which individual cases have been treated and tested prior to and following remediation. Practically all these reports have shown marked acceleration in growth in the areas of deficit. Smith (1962), Hart (1963), and Wiseman (1965) have each used matched group techniques to examine the effects of psycholinguistic remediation. In each instance, very significant gains in psycholinguistic skills were made by their experimental groups in comparison with the controls.

For instance, in Figures 6 and 7, taken from Wiseman's study, it will be noted that ten children, chosen at random from a group of ten matched pairs, made substantial gains in their areas of deficit following six months of remediation, while the control group made no such progress. There was, however, no acceleration by the experimental group

GROUP PROFILES FOR MEAN ITPA SUBTEST SCORES

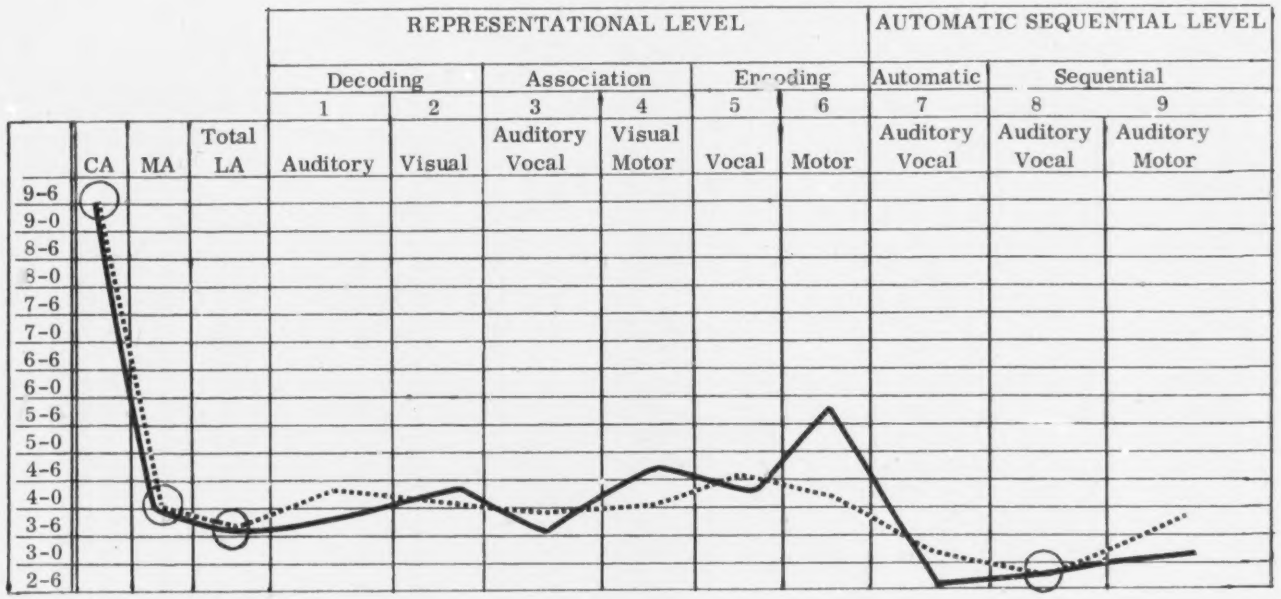


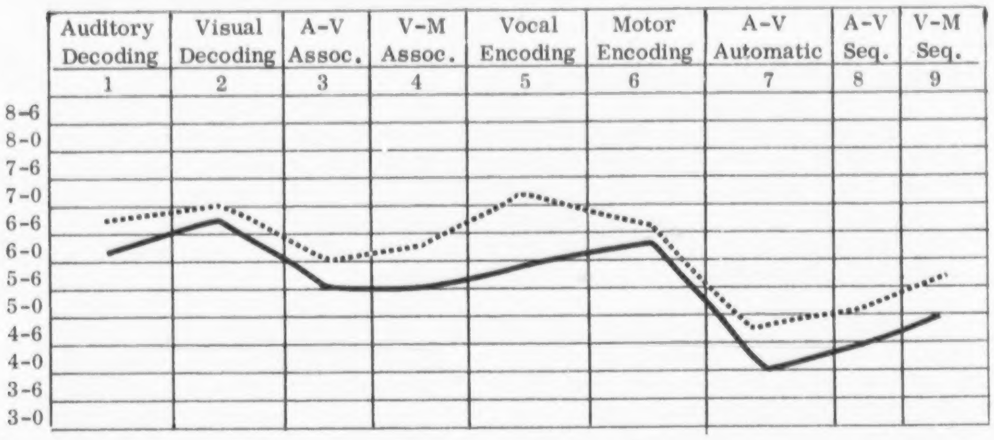
Figure 5

Mongoloid Group ━━━
Non-Mongoloid Group ┈┈┈

(Source: McCarthy, Jeanne M. Patterns of pscyholinguistic development of mongoloid and nonmongoloid severely retarded children. Unpublished doctoral dissertation, 1965.)

in their areas of asset. It might be that many of these children had avoided the areas of deficit during their growing period and had reached their limit in certain other areas almost as a compensatory counterbalance. This would be in line with the consistent findings of Kass (1962), Ragland (1964), and McLeod (1965) that children with reading disabilities exhibit unexpected strengths in visual decoding (of pictures). Remediation, therefore, seems to be reinstating what probably should have developed earlier.

Comparing Pretest and Posttest Profiles of Average Subtest Scores
for the Experimental Group



Pretest ——
Posttest ....

Figure 6

(Source: Wiseman, D.E. The effects of an individualized remedial program on mentally retarded children with psycholinguistic disabilities. Unpublished doctoral disseration, 1965.)

Comparing Pretest and Posttest Profiles of Average Subtest Scores
for the Control Group

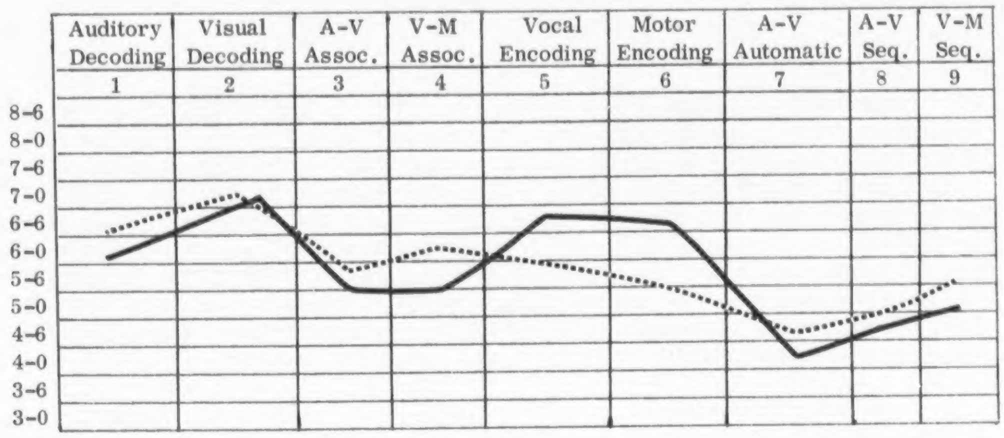


Figure 7

Pretest ——
Posttest ....

Of course, it might well be argued that there is nothing very remarkable about teaching children the skills measured by a test and then discovering that their score on that test improves. (Increasing children's IQ became something of a minor industry in England under the shadow of the "eleven plus" examination which determines whether or not children should be admitted to an academic secondary education.) The crucial question is whether there is any positive transfer effect to other practical and useful activities. And whereas the coaching of IQ has had no significant effect on the educational growth of English secondary school children, there are indications of positive transfer from the remediation of psycholinguistic disabilities to reading, and maybe to intelligence. In a small, but well controlled experiment in Australia, Hart (1963) found that not only did his experimental group of cerebral palsied children respond to psycholinguistic remediation by showing considerable improvement in ITPA performance, but also by achieving a significantly higher reading level at the end of the period of remediation, despite the fact that they had had no special tutoring in reading itself.

In 1909, Alfred Binet, having constructed the Binet-Simon Scale, the impact of which on the identification of mental retardation can hardly be over estimated, asked: "Now that we have discovered the evil, what can we do to cure it?" We have tended to think of Binet as a tester rather than as a special educator, but he proceeded at that time to set up special classes for mentally retarded children and to organize a program to increase their reasoning ability, their attention, and their memory functions.

During the present century, we have had numerous controversies about whether intelligence is more or less of a fixed nature or whether it is modifiable. The present climate, however, in this country indicates that intelligence, as measured by intelligence tests, can be modified through experience at early ages, and through preschool education or changes in home environment.

The use of the ITPA in remediation, especially for young children, may be another approach to the educability of intelligence. There is some evidence from clinical cases that there is some improvement of the general IQ as measured by the Stanford-Binet or Wechsler tests following remediation. This appears to occur more with younger children than older children. Wiseman (1965), in the report studied above, dealt with children between the ages of seven and ten, and obtained only a three point increase in IQ for the experimental group and no increase in the control group. This difference was not significant. We have, however, seen increases in individual cases of 10 to 20 points in IQ following remediation in young children. We have not seen much acceleration in children at ages above eight. This is still in the realm of hypothesis, rather than fact, but it will be interesting to explore this possibility further.

Many individuals appear to want to use the ITPA as a general intelligence test and to report the overall language age of the child, rather than performance on the subtests. The ITPA is not intended as a global intelligence test. Anyone desiring an indication of general intelligence level should use tests such as the Binet or the WISC for this kind of determination. The ITPA should be regarded as indicating the current level of functioning in relatively specific skills, whereas the Binet test classifies children according to their general intellectual ability. There is a need for instruments similar to the ITPA which will show discrepancies in growth within the same child. In order to outline a remedial program for a child, it is necessary to find out his assets and deficits. The general IQ or the general language age of the ITPA does not serve this function.

Similarly, no one subtest score should be used as a measure of a child's language ability. Language involves more than grammar and syntax, more than rote memory, more than ability to express oneself orally. Just as a few subtests on the Binet do not represent an IQ, so a single subtest of the ITPA does not give a composite view of a child's language ability.

Significant Implications of ITPA Research

The two most significant, and to some extent interrelated, consequences which have thus far emerged from research centered on the ITPA are curriculum construction and the demonstration of the importance of skills at the integrative or automatic sequential level.

Curriculum Construction

The model on which the ITPA is based enables us to analyze linguistic behavior and define desirable skills. It makes it possible for teachers to organize classroom activities with clearly definable goals, utilizing and strengthening those skills which have been demarcated and shown to be related to reading and other academic skills. Given positive transfer, therefore, the model can be used not only to generate tests such as those of which the ITPA is made up, but as a basis for curriculum development for children at an early age or for children who are suffering from some form of learning disability. In some areas of the United States at the present time, as yet unreported projects are in progress that are using the ITPA model for this purpose.

Importance of Automatic Sequential Level Skills

The prevalence of disabilities at the automatic sequential level has been so consistently reported in research studies covering a wide variety of children with learning problems, that there can be little doubt that these skills are of greater importance than has generally been recognized in the past. Intelligence tests, for example, have tended either to ignore this type of skill or else to take it for granted. It is interesting, incidentally, to recall that David Wechsler considered omitting the digit span from his battery but decided to retain it as a supplementary test because of its diagnostic value in cases of special defects or organic disease (Wechsler, 1958). Apart from the implication that activities designed to foster integrative skills should be included in any program of remediation, the demonstrated significance of these skills has also generated further psycholinguistic research, encompassing and providing a rationale for such things as sound blending or, more accurately, phonemic blending and discrimination. Deficiencies in these skills have long been recognized as important in reading disability, but they have been as relatively unique and independent phenomena, rather than as elements of auditory decoding at the automatic level in a general theoretical framework.

Visual perception of words and of nonsense syllables is another avenue that has been explored over the years, but one which can be defined rather more precisely by means of psycholinguistic concepts. In the first place, the written reproduction of visually presented letter sequences fits the specifications of the visual motor association section of the model at the automatic level. Secondly, through the work of G.A. Miller at Harvard, we can control the amount of nonsense in a nonsense syllable by constructing letter sequences that approximate in different degrees the structure of English. It is not proposed to go into details of the methods by which this can be done, but you will be able to appreciate intuitively from the examples in Figure 8 that the letter sequences on the top row—which are zero order approximations—are quite random, whereas the second order approximations on the bottom row are beginning to resemble ordinary words.

Examples of Letter Sequences at Different Orders
of Approximation to English

Zero Order:	ntzg	wgfcn	gihcxn	gbzegpv
First Order:	fksk	osrtn	rsiott	bwrrhaa
Second Order:	thit	wasta	rerset	faulige

Figure 8

One experiment, carried out in Brisbane by McLeod, involved the written reproduction of tachistoscopically presented letter sequences, at different orders of approximation to English, by seven year old children. The control group was superior to the reading disability group, and their superiority was consistent; that is, it became neither more nor less marked as the letter sequences became more nearly like real words. Another rather interesting feature of these results is that for both groups, performance was very significantly better with letter sequences at a higher level of approximation. In other words, even the children who had virtually no measurable reading ability were able to reproduce letter sequences that resembled words better than sequences that did not resemble words.

The results of this experiment can be compared with the results of a similar type of experiment carried out with children some two years older, i.e., nine year olds. On this occasion, both reading ability and spelling ability were taken into account in the analysis of the data. When we analyze according to reading ability, the results are very similar to those obtained in the previous experiment with the seven year olds. The good readers are significantly better at this task than are the poor readers, and their superiority is consistent for all levels of approximation to English. When the children are classified according to spelling ability, however, we get rather a different picture. The good spellers are again superior, but their superiority increases as the letter sequences approximate more closely ordinary English words.

This brief description has been included as an example of the sort of experimentation that can be generated from a psycholinguistic orientation and to emphasize that the ITPA should be seen in its context, that is, in relation to its theoretical and/or clinical model, rather than just a series of test scores. It is not just another good idea or hunch which stands in splendid isolation. It is not a final answer to all questions of disabilities in children. Rather, it represents a beginning phase—and we believe, a significant phase—in the development of the applied branch of this science of psycholinguistics, a science which, hopefully, will open up vast new areas of research which are rich in promise for the fuller understanding of problems associated with the learning disabilities of exceptional children.

THE RELATION BETWEEN HAND-EYE PREFERENCE AND FIRST GRADE READING: A FOLLOWUP STUDY

Siegmar Muehl
Maurine Fry

In an earlier investigation, Muehl (1963) reported on the relation between hand-eye preference and visual orienting behavior of preschool children four to five years of age. Handedness was measured by six tasks which had been shown to yield consistent hand responses over time (drawing, cutting, hammering, block building, spooning marbles, throwing). Eyedness was measured by three objective tests involving sighting trials with the Miles (1930) V-scope and a sighting board. Visual orienting behavior was determined by performance on a 20 item matching task. A specific orienting response was defined by the character of the word choice. For example, when the word to be matched was girl, the response choices were: gilr, igrl, lirg and girl. The selection of gilr defined a left orienting response, since the choice apparently resulted from attending to the left letters of the word to the exclusion of the letter order at the right of the word. By the same reasoning, the selection of igrl defined a right response, lirg a middle response, and girl a correct orienting response.

Although the results of the study showed no relation between a specific type of orienting response and hand-eye preference as such, they did show that the children classified as left lateral, either in hand, eye, or both made more orienting errors than did children classified as consistently right handed and right eyed.

The present study reports the results of a followup investigation. The purpose was to determine whether the persistence of left lateral tendencies in this group of children was related to first grade reading performance.

Subjects and Procedures

The original investigation at the preschool level included 64 subjects. Forty subjects, 19 boys and 21 girls, remained in the local school system through first grade for the followup testing. Of the 24 missing subjects, 21 had moved from the community, one was deceased, and two did not have complete test scores.

Subjects were originally tested in the spring of 1962. Since some were four and others five years of age, the followup first grade reading measures were obtained in different years. The five year olds received a school administered Metropolitan Achievement Test (primary battery) in the spring of 1964 after a lapse of two years from the preschool testing. The four year olds received the same test in the spring of 1965 after a lapse of three years. Metropolitan standard scores on the word knowledge, word recognition, and reading subtests were averaged to obtain an overall reading score for each subject. The arithmetic subtest standard score was also recorded. The mean CA at the time of Metropolitan administration was 7.17 years (SD, .42).

Subjects were retested for hand-eye preference using the drawing and cutting hand tests and the Miles (1930) test of binocular sighting preference. These tests were selected from the original preschool battery. Subjects were classified right or left handed if they performed consistently in both drawing and cutting, and mixed if inconsistent. Based on six sighting trials, subjects were classified as right or left eyed if consistent on five of six trials, and mixed if inconsistent on two or more trials. In addition, an IQ estimate was obtained with the WISC vocabulary subtest.

Results

Laterality. The results of the laterality retesting showed that, when compared with results of the preschool testing of the 40 subjects, three shifts in handedness and nine in eyedness were recorded. In most instances, subjects changed to a mixed tendency which occurred probably because of the abbreviated nature of the retest. However, in three instances, subjects shifted eyedness completely. The percent of subjects in the various hand-eye categories can be compared with Belmont and Birch's (1963) findings with similarly aged subjects. Birch reported 48 percent mixed as compared to 15 percent in the present study. This greater percentage of mixed cases can be accounted for by the difference in tests and scoring procedures used. Belmont and Birch required complete consistency on four handedness tests; they also included eyedness measures for both binocular and monocular sighting. Research indicates that these two eye functions are not always located in the same eye (Berner and Berner, 1953; Buxton and Crossland, 1937). Such tests would tend to produce more mixed eye ratings.

Reading and Arithmetic. To control for chance differences in IQ between the laterality groups, an analysis of covariance was used. CA differences between the laterality groups were negligible. The overall IQ mean was 117.1 (SD, 19.6); the overall reading and arithmetic scores were 59.7 and 61.1, respectively.

Enough subjects were available to arrange four laterality group comparisons. Two analyses of covariance were used in each comparison, one involving reading and the other arithmetic. In all comparisons, there were no reliable differences in variability of the adjusted scores.

Since significantly fewer word recognition errors were reported in the preschool study for consistent right hand-eyed children when compared with children with left lateral tendencies in either hand, eye, or both, the comparison was repeated in the followup study. The results indicate better performance in reading but not in arithmetic for the consistent right group.

In a comparison assessing the effects of consistent versus crossed tendencies, only right handed subjects were included due to the small number who were consistent left hand-eyed or crossed with left hand and right eye. The results show a significant difference favoring the consistent right group in both reading and arithmetic performance.

The next comparison assessed the effect of handedness as such. Included with the right and left handed groups were subjects with right, left, and mixed eye tendencies. The results showed no reliable differences in reading or arithmetic performance.

The final comparison assessed the effects of eyedness as such. Included with the right and left eyed groups were subjects having right, left, and mixed hand dominance. The results showed a reliable difference in reading performance favoring the right eyed subject.

Discussion

The present study compared the reading and arithmetic performance of first grade children with various hand-eye preference patterns. The results showed poorer reading performance for crossed hand-eye (right-left) and left eyed children, compared with consistent hand-eye (right-right) or right eyed children. Due to the small number of children with crossed left-right and consistent left tendencies, it was not possible to determine whether the crossed pattern or eyedness was more important in the reading relationship. A difference in arithmetic performance was found in only one of the comparisons. Apparently crossed hand-eye or left eyed patterns interacted more specifically with the reading process.

In this much researched area of laterality, two questions need investigation in relation to the present positive findings: (a) How do these findings compare to related studies? (b) What mechanisms—psychological or physical—can be hypothesized to mediate between lateral tendencies and reading performance?

The literature was reviewed to locate studies in the primary grades. This age level was chosen for two reasons. One, first graders were used in the present study. Two, if such a laterality reading relation exists, it seemed likely that it might better be observed in the beginning learner than in the child whose experiences introduce other factors into the learning process.

Five primary level studies were found. In four of these, the reading comparisons among various hand-eye group failed to show differences (Balow, 1963; Balow and Balow, 1964; Hillerich, 1964; Stevenson and Robinson, 1953). However, in these studies, the methods of testing handedness and eyedness differed from those used in the present study. In the case of handedness, the tests either varied greatly in the amount of past practice or learning involved (Balow, 1963), or they were deliberately selected to minimize the effects of past learning (Hillerich, 1964). In either case, the test results would tend to yield a different classification of handedness, particularly mixed cases, than the ones obtained in the present study. Here only highly practiced tests were used. In testing eyedness, all studies except Hillerich's used a test battery combining binocular and monocular sighting tests. As noted earlier, the results would yield different classifications of eyedness—again, more mixed cases—as compared to the binocular tests used in the present study.

By contrast, Koos (1964) reported a significant difference in primary grade reading performance for children with IQ's under 125 when comparing groups with crossed and consistent hand-eye tendencies. The difference favored the consistent group.

Comparing similar groups with IQ's above 125, she found no difference. Koos used a monocular test only to classify eye preference. She did not indicate the composition of the crossed and consistent groups. For this reason, it is again impossible to determine whether the crossed or the left eyed tendency as such is the critical feature.

In answer to the first question—how do the present findings relate to earlier studies—they do not. Although the research cited was more or less comparable in age level studied, laterality tests were different. This difference, as reflected in hand-eye classifications, may account for the differing relations with reading.

What mechanism can be hypothesized to mediate the laterality reading relation found in Koos and the present study? Leaval and Fults (1943) studied the relation between directional movement in drawing and laterality in elementary children. They found a tendency in right hand-eyed children to draw in a left to right direction as compared to a right to left direction for left eyed children, regardless of hand preference. The authors concluded that eyedness was the important factor in this directional relation. Stevenson and Robinson (1953) also found the same directional tendency in comparing consistent right with right hand-left eyed groups in kindergarten. On followup, however, they found that the right to left tendency had disappeared by the end of first grade. These children had IQ's averaging over 125. LaGrone and Holland (1943), investigating the accuracy of peripheral vision in relation to laterality in second graders, reported a consistent tendency for left hand-eyed children to make better recognition scores in the right visual field and for consistent right children to make better scores in the left visual field.

Is the difference in peripheral vision accuracy related to the differing directional tendencies for right and left eyed children? One could speculate on a cause and effect relation in either direction. More to the point, we would speculate that these tendencies, in some combination, may be part of the mechanism underlying the poorer reading performance of left eyed children. Reading requires a left to right eye movement. The child with a natural motor tendency to move in a right to left direction would have to learn to overcome this tendency to successfully recognize words in isolation and in sequence. However, if learning is involved, then intelligence would serve as a psychological mechanism interacting with the basic motor tendency. Brighter children would presumably have less difficulty in learning the necessary left to right tendency.

Support for this interaction hypothesis is found both in Stevenson and Robinson (1953) and Koos (1964). Although the former authors found a right to left directional tendency in left eyed children before reading instruction, the tendency had disappeared by the end of first grade. Further, no reading differences were found between their consistent right and right hand-left eyed groups. Koos also found no reading differences between her consistent and crossed groups high in IQ. She did find a difference in reading ability comparing similar groups with lower IQ's.

In conclusion, since the research findings in this area are not consistent and since the mechanism to account for positive findings is highly speculative, we are not prepared to suggest routine hand-eye testing for beginning readers. The practical point seems to be that the teacher should be alert for the child having directional problems in attacking words and sentences. No matter what his lateral status, he will need extra attention and practice to learn the correct left to right direction. We wish to state strongly that there is no evidence in this paper or in any other research at the present time to warrant attempting to change a child's hand-eye status.

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ABSTRACTS

LEARNING DISABILITIES—WHO?

Sam D. Clements

The acceptance of the concept of learning disability as it related to children of school age represents considerable progress in the field of education, and, in particular, the area of special education.

The progress, however, is somewhat marred by a recently developed controversy. This controversy pivots on which children are to be included in the concept. In this regard, two schools of thought are apparent and can be distinguished as follows:

1. Numerous multidisciplinary oriented groups of child workers who prefer to reserve the descriptive term learning disabilities as the educational counterpart to the more medically oriented diagnosis of minimal brain dysfunctions in children.
2. A small but stentorian group of educators who apparently wish to expand and retain the term learning disabilities for a proposed unifying concept throughout the field of special education. The term would relate to the difficulties in

learning experienced by most exceptional children and would thus enfold the mentally retarded, the minimally brain dysfunctioning, the culturally disadvantaged, the so called emotionally disturbed, the blind, the crippled, etc., etc.

Although the latter viewpoint may represent a much needed philosophical reorientation within the field of special education, it holds little practical promise for the near future, since it will involve a deemphasis of specialty areas within special education and a complete revision of teacher preparation and certification. To my knowledge, no teacher training facility is willing at present to reorganize its various programs along this line, although this is being discussed.

A more serious facet of the problem is that this latter view is being nourished by a group of educators who appear to be antimedical in their thinking. One can then presume they are also in opposition to the multidisciplinary approach to deviant children. They seem vexed by the educational interest shown in children with minimal brain dysfunctions by the medical and other health related professions, when such attention had not been paid by these disciplines to the educational needs of other groups of exceptional children.

It is our opinion that educators cannot afford to close the door on the medical groups, but rather should work to promote continued and expanded interest by such professionals in other groups of exceptional children. Educators must accept the fact that they are no longer the sole custodians of children with learning disabilities.

We recommend continued use of the term learning disabilities as the educational alternate to the diagnosis of minimal brain dysfunctions.

EARLY IDENTIFICATION OF CHILDREN WITH LEARNING DISABILITIES

Norris G. Haring

This paper describes comprehensive procedures that were used to identify those children in kindergarten classes who have potential learning disabilities. This type of child is defined as follows: The child with a learning disability is characterized by an educationally significant discrepancy between his estimated potential for learning and his day to day level of functioning in the classroom. His basic disorders in the learning process may or may not be accompanied by demonstrable dysfunctioning of his central nervous system, and the disorders are not secondary to generalized mental retardation, severe emotional disturbance, extreme environmental and/or educational deprivation, or blindness or deafness. Accordingly, children with normal intelligence, hearing, sight, and emotional development could have learning disabilities that a conventional psychological evaluation might fail to identify. Because of this, an attempt has been made to discover these children before they have experienced such failure in the normal classroom setting that their problems become compounded by means of certain tests that measure the variables which are generally accepted as correlates of learning problems.

The areas selected as representing the basic processes necessary for the performance of academic tasks were: (a) visual perception, (b) eye-hand coordination, (c) auditory discrimination, (d) visual attention span, (e) auditory attention span, (f) directionality, (g) large muscle coordination, and (h) general language development.

This project incorporated 48 kindergarten classes of School District 110 in Johnson County, Kansas. From 900 children, 106 were selected for this study. These children were given the following tests:

1. Illinois Test of Psycholinguistic Abilities.
2. The Detroit Tests of Learning Aptitudes.
3. PICSI Auditory Discrimination Evaluation.

4. The Anton Brenner Developmental Gestalt Test of School Readiness.
5. The Wide Range Achievement Test.
6. The Beery-Buktenika Visual Motor Test.
7. The Anton Brenner Test and The Wide Range Achievement Test.
8. Perceptual-Motor Survey.
9. Test of Left-Right Discrimination.
10. Hand and Wrist Bone Age Measurement.

Through the use of these tests we have attempted to measure the common areas of performance on the various tests in order to ascertain which tests were measuring the same or similar learning processes. With this information known, we could reduce the amount of time spent on testing and, most importantly, hasten the identification of children who have learning disabilities.

LEARNING DISABILITIES—WHY?

Richard W. Outland

Why are there school programs under this unresolved aegis of learning disabilities? President Johnson stated at the NEA Convention last year: "Time for talking and dreaming and philosophizing and writing platforms on education is gone and the time for doing something is here. The day of the talker is gone, the day of the doer is here. I want to bring all of the tools of modern knowledge to bear on the increase of learning, and if these tools are still inadequate, we must justify new and better ones."

The time for just talking about learning disabilities is over and the time for doing is upon us. May we take a brief look at a doing program now serving some 11,850 pupils enrolled in the public school programs of California? (Your speaker does not cite the California program because it is one that has reached Utopia in serving children with learning disabilities, but rather because of his own direct contact with the program and the limitation of time which does not make it feasible to deal with a variety of programs in operation across the nation.)

This program was established by legislative action in July, 1963. This legislative action was certainly the direct result of pressure brought to bear on the California legislature by parents, community leaders, and educators.

Major Aspects of Program

Identification. Identification is established on the basis of written reports from an educator, certified psychologist, and one or more licensed physicians representing, but not limited to, pediatrics, neurology, and psychiatry. These reports are then acted upon by an admissions committee including a teacher, school nurse or social worker, school psychologist, principal or supervisor, and a licensed physician. This committee is required by law to make an annual reevaluation of the pupils' social adjustment and academic progress.

Types of Programs. The law provides for three types of programs, and they are being widely used.

Special day classes, which comprise self-contained classes with the following enrollment limitations: kindergarten through junior high school, 11 per class (if the CA is greater than three years, the number must be reduced to 9); high school, 12 per class (if the CA is greater than 3 years, the number must be reduced to 10).

Learning disability groups, which are for elementary and secondary pupils for varying periods in a regular class, but which require individual or small group instruction.

(Enrollment limitations are also placed upon these groups.)

Home and hospital instruction, which provides individual instruction for elementary and secondary pupils unable to function in a school setting.

A followup study made during the fall of 1964 indicates that many of the children enrolled in the program have had their failure patterns reversed and may be prevented from becoming school dropouts.

Curriculum Methods and Materials. It must be remembered that in this program the child's needs are being programed and not his label, so there can be no one method. This should not be construed to mean that certain methods are not more effective than others. On the contrary, the purpose of the careful appraisal of each child is to provide the basis for selecting the particular educational experience that is needed. The following are a few selected examples one would generally find in viewing these programs:

1. These children, with rare exceptions, are basically more like other children than they are different from them. They have the personality needs of all children, i.e., recognition, love, security, and response. In trying to meet these needs, their handicaps get in their way; and thus special opportunities must be given to meet these personality requirements.
2. These children have more trouble internalizing controls and need clear and consistent external limits continued beyond the usual for any given chronological age.
3. Direct observations of objects, materials, and procedures seem very profitable with these children. Use these experiences in helping to make generalizations, with which many of these children need much help.
4. Motivation seems to be stronger when quick and frequent successes are provided for the child. Eliminate group competition and keep frustrations to a minimum.
5. Particular attention must be given to readiness. Make allowances and adjustments for progress on an individual basis, rather than on a class basis. For example, phonics work varies from child to child, depending upon auditory training and ability. Some will profit from practice with vowel sounds, while others will need help with consonants. Some are able to learn from phonics games, while others will have difficulty reading words out of context.
6. Teaching machines, mechanical devices, and programed learning materials offer much help, particularly with older pupils struggling with the problems of short attention span and concentration.
7. These pupils have highly individual learning and work patterns, partly due to their individual visual, motor, and auditory problems. Not only must the type of perceptual problem be determined, but the degree of the disability must be ascertained.
8. Physical education is of vital importance because of two broad benefits to be derived: (a) Overcoming of motor handicaps helps with self-esteem and self-confidence. (b) Motor competency precedes academic achievement in terms of physiological development and is an important condition of readiness.

Physical Facilities. In any new public school program, one generally faces some growing pains in connection with housing. Practical school limitations upon structure and finances seem to require a compromise between the ideal and the obtainable. Recently, some standards have been developed, relative to the housing of these programs. The following are a few basic guidelines used in developing these standards:

1. Plant facilities should be arranged so as not to generate an obvious sense of the children being different.
2. The room should not be subject to frequent noise or traffic.

3. The interior of the special classroom should contain a minimum of visual distractions without actually making the space seem unattractive or depressing.
4. Include adequate space and equipment for individual, isolated, or semiisolated academic study and work, as well as space for some group activity.
5. Tentative specifications and standards are currently planning to allow 1400 square feet per classroom which would include walk in storage space, office and conference space, and testing and individual study areas.

If we subscribe to the point of view that a democracy accepts the responsibility for the education of all children, we have the answer to why there are school programs under the unresolved aegis of learning disabilities. We cannot wait until we have all of the answers. The day of the talker is gone, the day of the doer must be here.

AN EMPIRICAL INVESTIGATION OF THE DELACATO INTERPRETATION OF NEUROLOGICAL ORGANIZATION

Melvyn P. Robbins

The purpose of the two studies being reported was to test the theory of neurological organization. Both normative and experimental data from normal second graders and children with reading disability were used to test a series of hypotheses deduced from the theory. The results failed to confirm the central concept of the theory—the relationship between neurological organization (as measured by creeping and laterality) and reading—and failed to confirm the practical advantage of exposing children to a program based on activities suggested by Carl Delacato. The results imply that caution should be exercised by anyone considering the adoption of the rationale until further research evidence can verify the claims made by the theory's advocates.

VISUAL IMPAIRMENT

DYNAMIC PROGRAMING FOR THE MULTIPLY HANDICAPPED BLIND CHILD

Sister M. Rose Imelda

Saint Joseph's School for the Blind is a private nonsectarian school for multiply handicapped blind children. At present there are 48 children, 33 of whom are resident. Children are acceptable who are orphaned or who have such handicaps as total blindness, functional retardation, emotional disturbance and/or orthopedic problems, convulsive disorders, communication problems, cerebral palsy, or overt family rejection. Their IQ's range from nontestable to 75 on the Hayes-Binet and the WISC Verbal Scale.

Administration and Staff. This school is administered by five Sisters of Saint Joseph. One is chief administrator; one, a directress of personnel, aides, and volunteers; and three are teachers. There are 22 full time lay staff and 21 doctors on an active medical-dental staff, as well as 22 full time aides from the federal antipoverty program and 400 volunteers from the community near and far who give a minimum of one hour per week to help us educate these children.

Budget. The present operating cost is $150,000 per year over a ten month period. This means a minimum per capita of $3,000. This amount is being realized through private tuition, state aid, and donations. More than half of the total cost is paid out in lay staff salaries. An alumnus who attended our school when the concentration was on the average and gifted blind and who received his degree from a university in communications and public relations is in training as our public and community relations person. Through his efforts, we hope not only to be able to continue with the present budget, but to increase in ability and facilities to handle the many multiply handicapped blind children who ask us for help.

Objective. Our program objective is the social, physical, emotional, and educational independence that is related to the full potential of each individual child considered uniquely. Group and individual programing is constantly being planned, reevaluated, and replanned.

Curricula. Curricula used in this planning have been:

1. "An Experimental Curriculum for Young Mentally Retarded Children," by Francis P. Connor and Mabel E. Talbot, Bureau of Publications, Teachers College, Columbie University, New York, 1965.
2. "Curriculum for the Mentally Retarded," by Sisters of St. Francis of Assisi, St. Coletta Schools, Cardinal Stritch College, Milwaukee, Wisconsin, 1961.
3. "Learning Experiences for the Educable Mentally Retarded Child," Board of Education, Newark, New Jersey, 1959.
4. "The Diagnosis and Treatment of Speech and Reading Problems," by Carl H. Delacato, Charles C Thomas, Publisher, Springfield, Illinois, 1963.
5. "The Montessori Elementary Material," by Maria Montessori, Robert Bentley, Inc., Cambridge, Massachusetts, 1964.
6. "Employment Orientation and Related Fields," by Joseph F. Cappello, East Windsor School District, Highstown, New Jersey, 1965.
7. "The Slow Learner in the Classroom," by Newell C. Kephart, Charles E. Merrill Books, Inc., 1960.
8. "The Other Child," by Richard S. Lewis, Alfred A. Strauss, and Laura E. Lehtinen, Gruce and Stratton, New York, 1960.
9. "Psychology of Exceptional Children and Youth," by William M. Cruickshank, Prentice-Hall, Inc., 1963.

The application of such curricula makes Saint Joseph's School a very busy place. Here, happiness is a furry, perky cat. Sadness is the loss of a dearly loved pup which ran away one day, teaching a lesson about the passing realities of this life.

Curricula Implementation. Here educable blind children learn the basic tool subjects through the medium of braille reading and writing, by developing listening skills, and by close contact with people who have traveled and studied in many parts of the world. The fifth grade is maximum achievement level at this time. Social studies are emphasized by using many different globes and maps, taped materials, and field trips near and far. Language stimulation is increased by great amounts of socialization, taping conversations, dramatic play, puppet playing, telephone education, and speech and language therapy. Our speech therapist gives individual and group therapy to 16 children whose problems range from no speech to articulation disorders.

Occupational therapy is given on an individual basis. Most children receive at least three hours of it per week. The therapist is a nearly retired gentleman with whom the children identify as a father or grandfather. They vie with each other for frequent appointments with him for the purpose of making crafts and having a heart to heart chat. They make such things as tiled hot plates, cord woven baskets, cotton ball dolls, colored gravel art, popsicle stick flower pots, picture frames, bird houses, jewel boxes, and necklaces and bracelets; during class time, they pursue creative clay modeling. Many children are given sequential tactile training and exercises to develop manual competence (described for fully in the section on the neurological approach).

Dancing, including ballroom, tap, and ballet, has been given to the older children according to interest. Music is stressed with most of the children, including instrument and piano playing and individual music therapy according to interest and need. Ham radio is another activity available for those boys and girls who show an aptitude and liking for it. One set for beginners takes in a 60 mile radius. Another transmitter and amplifier can reach stations all over the world for those who are so motivated that they are able to earn a general license.

Physical Activity Approach. Physical education is stressed and fills most of the spare moments. Swimming on an average of twice a week is a necessary and delightful part of our school life. Tandem bike riding with volunteers is encouraged. Many trips to the neighborhood park provide the needed grassy environment and wide open spaces. Calisthenics, isometrics, wrestling, rope climbing, bar and ladder exercises, basketball, and low organization games are scheduled for after school and after supper.

Psychological Approach. Psychological services have a unique and important place in the curriculum. Eleven children receive individual psychotherapy from part time psychologists, and six boys are in group therapy. The call it the club. A full time psychiatric social worker is employed as administration secretary. The children are always running to this kind person, thinking they are bothering the secretary, and rambling on about their jobs and heartaches. This same person tries to get in regular home visits. The part time psychologist sees some parents for counseling—too few at present—considering the needs of both children and parents. Every two years, psychological reports are made.

Habilitative Approach. Typing is taught to children who have reached a fourth grade level of academic achievement. Brownies, Junior Girl Scouts, and Cub Scouts make Wednesday afternoon and evening a weekly highlight. Activities of daily living are stressed in the classroom and by the houseparents. These include putting on clothes; tying shoe laces; buttoning, zippering, and snapping wearing apparel; and learning to eat with the proper utensils. In the beginning, the meals were brought to the children and they thought they dropped from the sky magically. Now we ask them to take their plate to the food truck and we serve them from there, talking to them about the menu all the while. They then proceed to their own table, accomplishing orientation and mobility skills, as well as being more aware of reality.

Rehabilitative Approach. A well thought out rehabilitation program is given to students 13 to 16 years of age who will not be able to move into a regular school. Two mornings each week, covering eight hours a week, these students go to an occupational center one mile from the school and are exposed to many different types of contract work with fifty sighted, retarded trainees and encore workers. Such jobs as putting erasers into metal inserts, assembling the interior part of a lead pencil, reassembling boxes, sorting, etc. are accomplished under the workshop supervisor. Motivation toward work has become intensified to a very high degree. A monthly pay check fluctuating between one dollar and six dollars gives the students and our staff an idea of their potential in the vocational area. This part of their training costs the school three dollars per four hours for each pupil. Two years of individual planning and orientation and close liaison with out of state rehabilitation counselors make it possible for them to go into sheltered workshops in the particular state from which the students originate. Jobs around the school are emphasized for this group, as well as intensive mobility training and vocational and personal adjustment counseling.

Medical Services. Our school is fortunate to have 21 medical specialists volunteer their time and services to us. Most are chiefs of staff at the nearby medical center. Six pediatricians and four doctors of internal medicine take about a month being totally responsible for emergencies, coming in one morning each week for sick bay and doing some complete physicals. If a child needs a follow up service, the doctor who initiates follows the case. The psychiatrist is a member of this team. For special problems, referrals are made to other medical staff members by the doctor in charge and through our school nurse.

When night comes, tired but happy children go to bed and instantly fall asleep. For this reason we have no night supervisors. The housemother sleeping on each of the two foors is seldom awakened by restless, sleepless children.

Neurological Approach. A more detailed treatment is needed regarding 16 of our children, who have very severe learning disabilities. Eight of these children cannot speak and are functioning on approximately a one year level but are between the ages of 9 and 14. Eight other children are functioning at a 2 to 5 year old level and have a 9 to 14 chronological age. The former group was despaired of by any psychologist, educator, or speech pathologist who evaluated them. There were not too many answers for the latter group either. For this reason we turned to the rehabilitationists at the Institutes for the Achievement of Human Potential, 8801 Stenton Avenue, Philadelphia, Pennsylvania. Two Sisters on our staff were given a grant to study the Doman-Delacato neurological approach to brain damage. This team claimed to have been successful with sighted children who were brain damaged. This approach has been underway at our school for the past year and a half. Since there is such severe involvement, we do not feel a true evaluation can be made for at least three or four years. However, there has already been enough improvement to warrant the continued intensive training and education it demands. Along with this approach, we superimpose all the enriching learning techniques our highly trained staff can offer, as cited in the section on curricula. Group one has a strict control, though this is not considered sophisticated research.

There is strong emphasis on tactile stimulation, using the grab bag and identifying a wide variety of large to small objects and materials. Manual skills are in the daily lesson plan. They do such things as pour an object from one cup to another; screw and unscrew jars, bottles, and bolts; arrange nesting toys; play peg games; place tiny wheels on autos; and pick up large and small coins with both thumb and index finger simultaneously. Gnostic and gustatory sensations are given much stimulation. The key is subjecting the child to large amounts of meaningful stimulation which has been gradually developed and is not becoming a truly structured curriculum.

Language is stressed, along with spelling, arithmetic, and reading through listening, with emphasis on comprehension and vocabulary, to the degree and in areas in which each child is ready for these. Those functioning on a one year old level would not be ready. Group two gets more of the above mentioned in larger, longer doses.

Along with the aforementioned and in conjunction with frequent meaningful field trips, these same children are given what is considered unique to the Doman-Delacato approach, which is a treatment designed to stimulate remaining nondamaged cells into taking over the function of the dead cells by imposing on the brain the patterns of activity which help develop the brain of a normal, unhurt child. This consists of:

1. Patterning (simulating a baby's crawl) on a therapy table five minutes four times daily.
2. Crawling on the stomach two hours (hopefully) throughout the day in 15 to 30 minute periods.
3. Much incidental creeping when not crawling.
4. Masking for one minute once every waking half hour to increase the vital breathing capacity and further stimulate unused brain cells.
5. Attention given to the sleep position to supplement a continued effort to establish hemispheric dominance.
6. No music for entertainment for this group, only because they are already supersaturated with this type of exposure since birth, and also on the basis that music feeds the subdominant (nondirective) part of the brain and we are trying to give the dominant part of the brain a chance to take over for the

purpose of greater self-direction.

The activities of daily living are given prime attention, with a view to making these children less dependent on those around them. Learning how to wash and dry hands and face and eat without too much assistance are skills we cannot take for granted.

The control group is given all but the controversial neurological approach and, in place of this, given an enriched physical education program.

Every two months each child is evaluated and every single month tabulations are made as to how much was truly accomplished by each child as compared with the goal set by the teacher for them. The following table will give the reader some idea of the actual accomplishment of tasks as performed by a particular child, presently functioning on a fourteen month level, between November, 1965, and March, 1966:

SUBJECT NUMBER ONE

Tasks	*Amount Accomplished during November, 1965	* Amount Accomplished during March, 1966
Number of Maskings	84 times	235 times
Number of Patternings	54 times	92 times
Amount of Crawling	3 hours, 35 minutes	27 hours, 30 minutes
Manual Competence	2 hours, 25 minutes	10 hours, 15 minutes
Tactile Competence	1 hour, 18 minutes	9 hours, 25 minutes
Auditory Competence	1 hour, 20 minutes	6 hours, 45 minutes
Language Competence	5 minutes	8 hours, 15 minutes
Story Telling and Reading	3 hours, 5 minutes	6 hours, 50 minutes
Number Concepts	15 minutes	3 hours, 35 minutes
Ordinary Daily Living	1 hour, 9 minutes	8 hours, 50 minutes

*Present task attention span, approximately 10 minutes

Reasons teachers cite for possible causes for the lack of required number of hours and/or times on programed tasks include (a) lack of cooperation, (b) faulty presentation, (c) inability to perform, (d) adjustment to a new helper, (e) common colds, etc., and (f) boredom (motto: Change task while you're ahead!). A similar record is kept each month on each child in both experimental groups.

Orientation Services. Frequent inservice training is given to any nonprofessional staff members and volunteers working closely with any of the children and bimonthly staff meetings are conducted with the full team present, at which time cases are presented for a deeper understanding of each child.

Resource and Itinerant Services. Two students have grown into an integrated program, attending the school across the street where 600 average sighted youngsters are being educated. Besides being involved in a full curriculum which includes much socialization with a peer group and an hour and a half of homework each night, these two students receive tutorial work in braille techniques from a resource room teacher.

Along with twelve students in our special school, these two students receive individual mobility instruction two hours each week. The goal is independent travel to school, using the cane or learning the route to the occupational center. More students are gradually being prepared to go to the community school, starting in the first few months with one hour per day. This has been another very successful part of our program. In the past five years, many of our children have advanced to the point of partial or complete integration into educational programs for the sighted. Others have been accepted and are functioning happily and productively in sheltered workshops.

The Future. Our goal is to eventually be able to plan successfully in a long range manner for all children admitted to our school, regardless of degree or multiplicity of disability. There are many keys to reaching them that we do not possess; but we know with a great certainty that the children have not failed in this matter. We must keep searching. Members of our staff are constantly pursuing further studies at highly regarded universities specializing in learning disabilities.

Our school has many educative and administrative projections for September of 1966 and future years, whereby we hope to accomplish what is presently at the vision stage. However, we are running toward the goal, and with Helen Keller, we feel like shouting, "While they were saying it could not be done, it was done!"

ABSTRACT

AN EXPERIMENTAL APPROACH TO THE TREATMENT OF VISUALLY IMPAIRED, MULTIHANDICAPPED CHILDREN

Steven Mattis

A mental health center for visually impaired, multihandicapped children was established at The Jewish Guild for the Blind in 1962. The center is jointly funded by NIMH and the Guild and is composed of a demonstration research project and a psychiatric clinic. While the development of diagnostic tools was an important goal, it was subsequently observed that the knowledge generated by our evolving evaluation procedures necessitated the development of new treatment modalities.

The clinic and research staff noted that most of the children evaluated at the clinic demonstrated either global or specific concept deficits. The children's adjustment and developmental difficulties appeared to be best understood if one postulated a CNS dysfunction of integrative functioning. Thus, one could view the child as an aphasic or conceptually impaired child whose difficulties are compounded by the lack of the primary information and corrective feedback modality—vision. This framework does not suggest that such children are not emotionally disturbed or do not manifest poor reality testing. The working hypothesis our evaluations do suggest, however, is that for many of our children reality testing and psychological defenses are poor because they are predicated on inadequate conceptual ability, and that anxiety levels are high because the child is both unable to comprehend what is required of him and limited cognitively to a narrow range of appropriate responses to his environment. Thus, the theoretical framework evolved in working with our particular patient population is not that psychological stress, the result of disruptive parent-child interaction, functionally retards the development of intellectual and adaptive processes, but rather that conceptual deficits of probably organic etiology result in inappropriate behavior and high anxiety.

With the hypothesis that concept deficits are the cause and emotional disturbance is the effect, two outpatient treatment or training programs were recently undertaken on an experimental basis. In both programs, the goal is to facilitate the child's acquisition of organizing principles with which to comprehend and respond to his environment. In the concept formation program, the goal is the development of concepts with children who are usually quite verbal but who demonstrate specific deficits and are often evaluated as aphasic and/or mildly or moderately retarded. Generally, the initial task for the psychologist who sees the child twice a week is to analyze the concept so as to determine basic sensory motor components. The child is then allowed the sensory motor experience with concomitant verbalizations in the form of problem solving and discrimination tasks.

Gradually, tasks are presented in which the sensory motor cues are diminished and verbalization encouraged, until tasks are solved utilizing only the verbal components. The child is given further practice, and the level of the concept attained is tested with the use of problem solving and sorting tests. In these tasks, the stimuli are controlled so that the child must evoke the concept as the most appropriate from among several likely hyptheses and often correctly discard it as inappropriate in other tasks.

The second program, the day treatment program, has more limited goals and serves children who are often viewed as autistic, schizophrenic, or profoundly retarded. These children demonstrate little or no receptive or expressive language and few self-care skills. The initial goal is to develop organizing principles, not at the level of concepts, but as the reliable sensory motor integration of external and internal stimuli. In this program, an effort is made to present the child first with tasks requiring the sensory response mode best developed by the child, then gradually to present tasks which require intersensory integration and multiple response modalities.

PRESCHOOL PROGRAMS

INTELLECTUAL DEVELOPMENT OF PRESCHOOL CHILDREN

Dean S. Hage

Early in my school career, when I was first being introduced to the field of special education under the tutelage of Professor James B. Stroud at the University of Iowa, there were two concepts that were hammered into my philosophy of special education. One was that handicaps tend to run in multiplicities, and the other was early identification of individuals with handicaps. Each of these concepts has been receiving considerable attention of late in the educational programs for handicapped youngsters; and each is assuming, I think, a more prominent role in educational programs today. The first concept—namely, early identification—is an integral part of the main purpose of my paper.

If you would hold to the tenet that early identification of exceptional children is important, the next logical question to come would be important for what? If one just identifies an exceptional child and does nothing about changing his environment, you might just as well not make the diagnosis in the first place. In fact, you may actually be doing some damage to the youngster when you have early identification without provision for treatment. I will support the idea that early identification is necessary in all areas of special education so that treatment or an altered course or program may be provided for the specific youngster who has some sort of difficulty.

This tenet has been most useful in the area of the deaf, where numerous preschool programs have been established in public school systems. The reason is that teachers working in this particular area found that, when one started to work with a deaf youngster when he was six or seven years old, the chances of developing reasonably adequate language and conceptual skills was more difficult than when the youngsters were initiated into the program at a much earlier date. Therefore, it is not uncommon to find preschool programs for the deaf. Could it not be as important to identify intellectual problems early, whereby one could manipulate an educational program with extremely young children, thereby increasing their potential for learning in the long run? For when you scrutinize the learnings employed by preschool programs for the deaf, what really is being done is to provide the child the intellectual stimulation denied him by his inability to hear—in short, training his intellect.

The concept of early education for children is not new on the educational scene, for John Amos Comenius (1592-1671) proposed a grading system in education based on the growth and development of children. In his book, The Great Didactic, he wrote, "Everyone ought to receive a universal education and this at school." In this book, he proposed four levels of education, the first being a mother's school in the home for children from birth to age six. Thus, you see, it can be readily demonstrated that the early intellectual development of children is nothing new in our educational philosophy.

At the onset of the testing movement, with Binet the landmark of the beginnings of intelligence testing, renewed interest was focused on intellectual development of children, for Binet found items that children could pass at one age but not at another to include in his scale. Some people forget that Binet at times was really talking about the educability of intelligence or, if you will, the ability to change the intellectual functioning of an individual through a direct educational program. This concept of the educability of intelligence was soon lost in controversies centering around the constancy of the IQ and the reliability and validity of intelligence measures.

In the twenties and thirties the issue at hand was the age old nature-nurture problem with, of course, definite philosophies being developed to support the issue of each side. One of the investigators (namely, Harold M. Skeels) provides some most interesting reading. If you are interested, I suggest you start with the thirty-ninth yearbook of the NSSE, Part II—"Intelligence: Its Nature and Nurture", in which one of the chapters was written by Skeels. There are some generalizations about intelligence given which might be worthwhile mentioning:

> 1. Intelligence as commonly defined is much more responsive to environmental changes than had previously been conceived.
> 2. A generalization that springs as a corollary is that the rather close relation reported between the intelligence of own parents and older own children is in part the result of environmental impacts on the child—the environment being largely determined and governed by the parents.
> 3. Indications from studies of the changes in mental development with changes in environment are that any hereditary constitutional factor that sets the limits of mental development operates within broad limits. Within these, environmental factors can operate produce changes that occasionally may represent a shift from one extreme to another of the present distribution of intelligence among children (p.315).

Many of these studies similar to those of Skeels received severe criticism in the literature; and soon research in this area began to diminish, or at least it was not as prevalent as during the twenties and thirties.

Now with all of the Project Head Start programs which have been initiated within the last year or two, there is a renewed interest coming about on the early development of intelligence; and they have a good deal of evidence to support the tenet that the time to begin intellectual stimulation is when the child is young or, if you will, long before the child reaches the usual age for entrance into school. In addition, there is considerable evidence that the intellectual functioning of an individual can be changed. This does not seem to be a debatable question anymore, for the evidence is very clear.

One might even surmise that possibly the pendulum is swinging too far to the nurture end of the controversy and forgetting about any hereditary components in intellectual potential. In a most informative little book, entitled Intellectual Development: Another Look, Milli Almy, in her chapter entitled "New Views on Intellectual Development in Childhood Education", makes the following statement:

> Essentially the view of intelligence that I shall present says

> that intelligence, rather than being fixed by genetic factors at birth, emerges as it is nurtured. Each stage of development carries with it possibilities for the acquisition of new abilities, new ways of processing information. Unless each of these abilities is sufficiently exercised as it emerges, it will not develop fully, it will contribute little if at all to the demands of the next stage (p.13).

The question then arises as to how best to go about developing the intellectual functioning of a child? Or, if you will, how do you educate intelligence? It is toward answering this question and similar questions that research will probably be directed for some time in the future, for we know all too little concerning the development of intelligence in young children. At that, the field has had some experimentation so that, as more and more people begin to develop education programs for young children, we do have some landmarks from which to proceed. I refer specifically to Piaget and the observations and experimentation he has accomplished with young children. There are several good translations of Piaget's work. One of the best summaries of his work that I have found is in the book Intelligence and Experience, by J. McV. Hunt.

In his writings Piaget describes the development patterns children follow, proceeding from the time of birth to extremely complex learnings. This developmental sequence has some rather far reaching curricular ramifications for an educational program for children. For example, Hunt says:

> It might be feasible to discover ways to govern the encounters that children have with their environments, especially during the early days of their development, to achieve a substantially faster rate of intellectual development and a substantially higher intellectual capacity. Moreover, in as much as the optimum rate of intellectual development would mean also self-directing interest and curiosity and genuine pleasure in intellectual activity, promoting intellectual development properly need imply nothing like the grim urgency which has been associated with "pushing" children. Furthermore, these procedures, in so far as they tended to maximize each child's potential for intellectual development would not decrease individual differences in intellectual capacity as assessed by tests but would increase them (p. 363).

What Hunt is saying, I think, is that if we control the environment of young children properly, it would be possible to help youngsters progress further, faster, with greater enthusiasm on their part. In a way, what is being said sounds similar to what J. B. Watson (1930) said some time ago in his book, Behaviorism:

> Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in, and I'll guarantee to take any one of them at random and train him to become any type of specialist I might select—doctor, lawyer, artist, merchant-chief, and yes, even beggar-man and thief, regardless of his talents, penchants, tendencies, abilities, vocations, and race of his ancestors (p.104).

Could it be that Watson, too, was talking about the educability of intelligence? To take just a slightly different look at the idea concerning the educability of intelligence, I refer you to an interesting article by Blatt and Garfunkel in the new journal put out by CEC, Education and Training of the Mentally Retarded, February, 1966, entitled "Dissonant Notions Concerning Disordered Children and Their Educability." In their article they say the following:

> We assume that intelligence is educable. By this statement we mean that there are procedures and conditions involving training and practice that intervene to bring out or elicit abilities in an individual for changing, both in rate and complexity, his learning performance in school related and other problem solving tasks. Or, to state this in a different way, we also mean that intellectual functioning is neither static nor dependable. Further, we assume that the potentialities of human beings are, generally and traditionally, underestimated. A correlate to this is our assumption that the effects of disability are overestimated.
>
> How do individuals change? We assume that change becomes possible when an individual needs to change, aspires to change, and most importantly, is optimistic about possibilities for change. Educating intelligence refers to more than hypothetical "mental faculties or abilities." It is associated with attitudes about self, learning, and abilities without which the phenomenon of change cannot be comprehended (pp.15-16).

It could be that if we were to examine the evidence which has already been accumulated by Piaget and others concerning the intellectual development of young children and couple this with the ideas as presented by Blatt and Garfunkel, we might be well on the way to developing a good, intellectual program for young children. The evidence is clear that the early stimulation of intelligence can produce intellectual changes in children. Since we, as educators, are concerned with the intellectual development of children who have reached their fifth birthday, it is our hope that preschool programs for young children will multiply in the near future.

You may have noted that I have made no mention of any specific system or instructional procedures for developing the intelligence of preschool children. This, I am sure, will come from the next two speakers on the program, for they are directly involved in working with children. However, I do hope that in some way you are convinced that education as a profession has neglected the early education of children, even though the evidence seems clear that the confrontation of young children to a formal education program could have far reaching ramifications in the total intellectual development of the learner. If we were to really become serious about educational programs for extremely young children, it just could be that expectations at all levels of learning would be altered.

In closing, let me at least give you some anchor as to the nature of intellectual growth which may serve as a springboard in developing intelligence. These are four hypotheses about the nature of intellectual growth, as proposed by Jerome S. Bruner in his book, Toward a Theory of Instruction:

> 1. Growth is characterized by increasing independence of response from the immediate nature of the stimulus.
> 2. Growth depends upon internalizing events into a "storage system" that corresponds to the environment.
> 3. Intellectual growth involves an increasing capacity to say to oneself and others, by means of words or symbols, what one has done or what one will do.
> 4. Intellectual development depends upon a systematic and contingent interaction between a tutor and a learner (pp.5-6).

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ABSTRACTS

EDUCATIONAL PROGRAMING FOR PRESCHOOL CHILDREN

Richard R. Ellis

Only a few years ago the title of this paper would have evoked, at best, cries of disdain or horror. These expressions would have come from educators in general, but the greatest voice would have been from the nursery school group. Today there appears to be less patent resistance to ideas of providing educational experiences to young children. Despite US federal government support to preschool education in communities all across the nation, there is not massive acceptance of these programs by educators. Differences between accepters and nonaccepters exist partly because of differing philosophies, e.g., Rousseau versus cognitive stimulation, and partly because there is no common understanding of the terminology used. Drawing upon findings of such as Piaget, Hunt, Bruner, Jensen, Luria, Montessori, and the work of the Institute for Developmental Studies, several basic assumptions underlie our planning of educational experiences for disadvantaged preschool children.

One assumption is that environment plays a major role in the development of cognitive skills and intellectual functioning. Another assumption is that a given aspect of the environment exerts a different influence on development of a function at different times. Also, there are probably at least three stages or levels of learning and development that progress from sensory motor (enactive) to perceptual (iconic) to ideational representational (symbolic).

The programing of a curriculum element or a series of elements involves considerations of sequence, step size, individual pacing, and feedback. The preferred sequence is from simple to complex. Steps within each sequence must be small enough for the child to cope with. Proper pacing allows the child to proceed from element to element at the rate most comfortable for him. Feedback, the response from the materials or teacher, gives the child confirming or corrective information.

An issue here is the way in which teachers structure questions. The structure of a question sets the level of the task required of the child. Also at issue is the actual language used by the teacher—the language of instruction. This language must be appropriate to the developmental level and past experience of the child.

Another issue concerns children's responses. When children do give a correct response, the teacher cannot safely assume that they know the concept involved. They may have learned the appropriate response, but it may be to some stimulus unrelated to the concept under focus.

Implied all through this discussion is that all of the best philosophy, theory, and programing in the world has little value in the classroom without a good teacher. The kind of programing we advocate requires thoughtful analysis, preparation, flexibility, evaluation, and professional thoroughness. This kind of programing requires the efforts not only of teachers or programers, but also of administrators, supervisors, classroom aides, and parents. The proper task of our educational system is to provide the learning experiences all of our children require.

HEARING CONSERVATION PROGRAMS FOR PRESCHOOL CHILDREN

Courtney D. Osborn

Michigan started demonstration preschool hearing conservation programs in 1961. Since that time, about 50,000 children between the ages of two and five have been screened in programs which include otological examination and medical and educational followup. General observations from these programs are:

1. Children of this age group, two to five years, can be screened successfully by adequately trained audiometric technicians, using play techniques with simple and inexpensive toys. Complicated and expensive motivational equipment is not needed for successful preschool hearing conservation programs.
2. Fifty to 80 percent of parents will respond to invitations to such screening programs with community organization and participation.
3. Screening centers should avoid hospital or clinic settings. Waiting rooms and testing rooms should have toys, books, and items of interest to this age group. Technicians should wear street clothes, rather than uniforms. Discussion of the audiometer or the earphones before the test should be avoided.
4. Simple audiometric air-bone gap measurement (negative Rinne) are helpful in identifying slight hearing losses in this age group.
5. The incidence of significant hearing loss in preschool children in Michigan is consistently higher than that discovered in school programs; and the incidence of medically correctable conditions is also greater.
6. Significant numbers of bilateral hearing losses of slight to moderate degree are found in preschool children. Such losses may retard language and speech development. Parents may describe such children as "shy," "doesn't talk much," "inattentive," or "slow to get acquainted with strangers."
7. Preschool children found with hearing loss tend to retain the loss over relatively long periods of time.

ADMINISTRATION

STRATEGIES AND TACTICS IN THE SUPERVISION OF THE SCHOOL PROGRAMS IN RURAL OR SPARSELY SETTLED AREAS

James R. Galloway

Most of us are aware of the time lag built into our system of developing new ideas, reporting these ideas, and implementing them in local programs. The opportunity rarely exists to break this system, or at least to telescope the time table usually required in reporting. By having the privilege to address this group today, I have been allowed that rare opportunity.

Three weeks ago in Denver, selected researchers, administrators, and educators met for four days in a working conference concerned with the problems of providing special education services in sparsely populated areas. This conference was designed to provide direction and guidelines for future research by identifying the researchable variables relating to the sparsity problem, by designing the kinds of studies that are needed and by proposing designs by which these studies might be achieved. I would like to report some of the questions considered by this conference, but first I feel obligated to tie this to the assigned topic of supervision of services in sparsely settled areas.

Supervision at its best encompasses the provision of whatever supportive help is needed to assure that every child receives the opportunity to benefit from adequate, well planned, well directed learning experiences. In large school systems, supervision is primarily concerned with the upgrading and maintenance of a high level of instructional competency, with a cautious eye cast on such services as diagnosis, counseling, work study programs, and parent education. All of these, in essence, are concerns for maintaining standards of existing programs, or for adding new programs to a well established special education model.

In rural settings, supervision is charged with the same responsibilities of providing adequate educational opportunities for all children. The task of providing whatever supportive help is needed becomes monumental, extremely varied, and completely nondefined. We do not have a model to hand to a state director, in a state like Montana or Idaho, other than our model of grouping children by exceptionality with a well qualified teacher specifically trained to teach these children. Remote areas exist where the provision of services cannot follow stereotyped patterns and where, because of the lack of adequate guidelines, services are quite often nonexistent.

To illustrate the problem of an administrator or supervisor in a rural state, consider the states of Montana, Wyoming, Nevada, or Idaho. In each state department, there is one person charged with the responsibilities of implementing and supervising special education services, as well as having the legislative responsibility for the proper utilization of state financial support of local school services. At least we now have one full time person in each state. A few years back, this responsibility was often shared with the supervision of the total elementary education program.

Since these states have comparable problems, let's take a closer look at the problems faced by the supervisor in Wyoming. Wyoming is a sparsely settled state characterized by small communities of widely scattered distribution. To illustrate this better, the state with its 97,506 square miles is comparable in land area to the following ten states: Connecticut, Delaware, Maryland, Massachusetts, New Hampshire, New Jersey, Rhose Island, Vermont, West Virginia, and South Carolina. The state population of 330,000 is less than half the population of Denver and less than the population of the northeast section of Philadelphia. Only Cheyenne and Casper, with approximately 40,000 each, are over 18,000 in population.

One of the most pressing problems of the Wyoming director is the best utilization of his time. It concerns him greatly that he loses one working day in every four behind the wheel of his car. He attempts to serve the state without any diagnostic capability in the state department and without finds to provide many needed supportive services. Although there is an enabling act for special classes, there is also an old statute that tells local school boards and administrators, "It shall be the duty of the state board of education to provide for the education, maintenance,...etc.,...of all exceptional children in the state." Needless to say this charge was not funded.

Since the problems encountered in initiating and supervising special education services in sparsely settled areas have not received much research activity in the past, the US Office of Education funded a national research conference on this topic, held in

Denver, March 28-31, 1966. This conference was jointly sponsored by the Montana State Department of Education and by the Western Interstate Commission for Higher Education. Although the conference did not address itself directly to strategies and tactics in the supervision of services, it did attempt to take a critical look at four major topics directly connected with the provision of services including financial patterns, administrative organization, personnel, and supportive services.

Rather than attempt a hurried, premature report of the findings and recommendatio resulting from the conference, I would like to indicate some of the questions that were considered. These questions are typical of the problems and concerns of the supervisor or administrator of special education programs in sparsely settled areas:

1. When does an expenditure for a handicapped child reach the point of diminishing returns and negate the humanitarian responsibility: (a) When pupil is taken to program. (b) When program is brought to pupil. (c) When benefit to child ceases?
2. What are the costs in respect to program size, number of children, and geographic factors?
3. What is the relationship between organizational patterns and the effective use of money for program support?
4. What factors account for differences in local attitudes toward financial support for education?
5. What factors account for strong interest in special education where general education *is* of high quality and where general education is *not* of high quality?
6. What is the feasibility of the establishment of regional special education centers organized on an interstate basis or on an intrastate basis? (a) How could such agencies be financed? (b) How comprehensive a program should they have? (c) How could the necessary relationships with local school systems be established?
7. What can be done to interest graduates in special education in sparsely populated areas?
8. What are the implications for teacher preparation in varying sparsely populated areas?
9. What can be done to help generalists do better teaching of exceptional children in sparsely settled areas?
10. How can diagnostic-consultant personnel best meet the needs of isolated children through the medium of regular personnel?
11. What is the incidence and population distribution of handicapped children in sparsely settled areas?
12. Is the problem of remoteness the central issue in the development of supportive services in sparsely settled areas, or are there other equally important factors, e.g., ethnic differences, language factors, poverty, etc.?
13. What kinds of interactive relationships lead to better coordination among supportive agencies?

Discussion of these and many other questions concerned with remoteness resulted in the formation of a series of recommendations for research and demonstration programs. The conference report, including all findings and recommendations, should be available within the next 30 days.

The national research conference on special education services in sparsely settled areas should communicate two things to the supervisor in a remote area. First, it should let him know that he is no longer alone in his quest for solutions to his problems. Second, it should provide him with program and research suggestions that result from the interactions of many very talented researchers, teachers, and administrators.

This conference will not, however, provide the rural supervisor with the one thing he wants desperately—the model for remote areas. It will still be the charge of the rural administrator, or supervisor, or teacher to initiate new programs, to try different patterns of service, and to measure the effectiveness of various programs in sound research designs. He can now assume that support for such program research can be anticipated from the Office of Education.

In reviewing the charge of the rural supervisor, he has, on one hand, exceptional children of all types in need of special services. On the other hand is his desire to provide adequate education experiences for these students. His charge is to do whatever is necessary to bring these hands together. Before this can be accomplished, he will probably need to identify and to get rid of some "sausages." (If you put the tips of your forefingers together and hold them at arm's length in front of your line of vision, then look beyond your fingers—say, at the wall—but with the fingers still in the field of vision, and if you pull the fingers barely apart, you will see a sausage. It is an illusion of course; there isn't any sausage there. But illusions often get in the way when we're trying intellectually to see something.)

The national research conference identified many sausages which block the provision of services in remote areas:

1. Sausages resulting from financial patterns of support that penalize for remoteness.
2. Sausages resulting from administrative patterns that dictate the special class within a single school district as the only method of providing special services.
3. Sausages which reflect the shortages of highly trained teaching and supportive personnel, implying that no services can be provided in their absence.

Finally, let us take a look at the biggest sausage of all. We might identify it as the sausage of rigidity or gun barrel vision. It is the tendency to look at problems and possible solutions in stereotyped ways. As you will notice with the demonstration of the forefingers, as long as you look over your finger tips at the wall beyond, you cannot possibly bring your fingers together. The only way to eliminate the sausage is to refocus your vision and look directly at the sausage—it disappears. The charge of rural supervision is to be flexible, to refocus, to experiment, and to develop its own model.

A CONTINUUM OF SERVICE— EVERY ADMINISTRATOR'S RESPONSIBILITY

James Greiner

Severely and multiply handicapped adults presently have two lifetime alternatives: institutionalization or complete dependency upon families. By matching disabilities it has been shown that severely and multiply handicapped people who would be completely dependent as individuals can live independently as a group.

Special education has articulated goals of helping every individual become as independent as possible, no matter how disabled he may be. Severely and multiply handicapped children may possibly be enrolled in a regular classroom with itinerant and/or consultant help. Others may be placed in a resource room or in a segregated special education classroom.

A significant number of young people have been identified as not being able to achieve success in even the most comprehensive secondary school setting. For these young people the activity center for multiply handicapped young people was established four years ago. In this nonacademically designed setting, the young people are given opportunities in a worklike setting to evaluate their level of vocational potential and to develop self-help skills and competency in the activities of daily living. Emphasis is placed upon meal planning and preparation, household maintenance and housekeeping activities, and development of maximum self-care skills.

There are 24 young people enrolled in the activity center program. All of these young people have at least two disabilities which require careful consideration. The disabilities represented in this group include cerebral palsy, muscular dystrophy, spina bifida, epilepsy, severe visual and auditory deficit, and mental retardation.

On the basis of the activity center experience, the need for establishment of a total life plan for this large group of multiply handicapped young people was recognized. Based upon the self-help skills and cooperative abilities which these young people demonstrated, an experiment in community cooperative living was designed to determine the feasibility of this kind of life plan. Due to the reluctance of several health and welfare agencies to sponsor this kind of demonstration, the Wayne County Intermediate School District assumed responsibility based on the rationale that educational planning must be based on realistic end goals. The county superintendent invited representatives of appropriate community agencies to react to preliminary planning for the demonstration project. At this meeting, offers of assistance were made by agency representatives.

A parallel meeting with parents of the young people enrolled in the activity center was scheduled. The concept of community living was discussed in depth with the parents. The response to this kind of alternative to institutionalization or dependency upon families was enthusiastically received by the parents.

A review of the literature reveals that experiments in community living for disabled individuals have been attempted in various parts of the country. These experiments have usually met with failure for three main reasons:

1. They have been training sessions with the individuals being brought together for weekend periods.
2. The participants themselves lacked the necessary preparation and skills.
3. The parents of the participants had not been adequately prepared.

The Demonstration Project in Community living for Multiply Physically Handicapped Young People was designed to avoid these problems. The young people lived in residence of a five day work week basis, returning to their families on weekends. The young people were selected because they had been together as a group in the daily activity center where they developed not only many of the necessary skills of household management, but the equally important skills of interpersonal and social relationships. The parents of the young people were intimately involved in the planning of the project, with careful attention given to their responsibilities and needs. Regular group meetings, as well as individual conferences, were held with the parents in order to answer their questions and to alert them to planning. (The parents also raised funds for all operational expenses except professional staff salaries.)

Ten multiply handicapped young people between the ages of 16 and 19 were brought together for the four week demonstration project in community living which was sponsored by the Wayne County Intermediate School District in cooperation with the Wayne County Training School, the Inkster Public Schools, and several community agencies. The residence of the assistant superintendent of the Wayne County Training School was utilized for the project. This is a two story, six bedroom house. The only modifications to the building were ramps at the front and side doors and support bars in the downstairs lavatory. The girls slept upstairs, and the boys slept in a large main floor room. Laundry facilities were available in the basement. A second story bathroom was used for bathing, since the main floor lavatory was inadequate. Although six of the young people required wheel chairs, only one boy had to be carried up and down stairs.

Each of the ten young people involved in this project has attended the activity center program from one to three years. They have had experiences in meal planning, meal preparation, washing and ironing clothes, as well as the important social experiences in which cooperation and compromise are so important. Priority was given to the older youngsters. All of the young people have minimal self-help abilities and are able to perform some service needed by the group. Five boys and five girls were included in the group. Represented disabilities include the following:

Cerebral Palsy	6
Muscular Dystrophy	1
Spina Bifida	1
Epilepsy	1
Deafness	1
Visual Problems	2
Learning Problems	8

Ages
16 (3)
17 (2)
18 (3)
19 (2)

The staff consisted of two special education trained professionals and two nonprofessionals who assumed evening responsibility. The building was completely maintained by the young people themselves. No adult had to mop a floor or cook a meal during the project period. Menus were prepared by the young people, after which shopping lists were completed and further arranged in terms of where specific items would be found in the supermarket. A staff member drove two of the young people into town, where they did the shopping. Tasks and schedules were planned by the young people, with revolution of tasks occurring whenever possible. Each young person was able to attempt each kind of task, with the resulting natural division of labor taking place.

The young people offered assistance to each other whenever necessary while getting dressed in the morning or while taking care of personal needs. They made sure that their beds were made before going down for breakfast. Breakfast was an individualized meal, with the late sleepers perhaps eating while the early risers were doing dishes. House cleaning and laundry chores were taken care of in the morning. Specific tasks, such as window washing, were scheduled by the young people. While the lunch crew was preparing lunch, some of the others were working on projects such as furniture reupholstering, refinishing, or rug making. After lunch, while the cleanup group was at work, others could get a head start on other individualized activities, such as oil painting and needle work. Dinner preparation was the most time consuming task of the day, but also perhaps the most rewarding. Peaches and blueberries were purchased and made into preserves and jam.

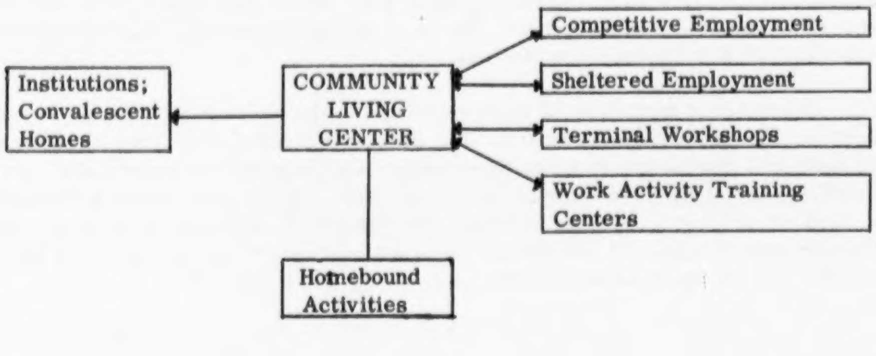
Evenings were times for relaxation. Corn or marshmallow roasts outdoors might be a prelude to some late evening television viewing and refrigerator raiding. Volleyball games and other recreational experiences were available to those who desired them.

Evaluation procedures were built into the demonstration project. These included:

Attitudinal Inventories (young people)	Inventories were administered in an interview situation to each of the young people each week. They included questions about their feelings concerning the amount of work expected of them, meals, adults, and

	general attitudes about the project and the community living center concept.
Sociometric Questionnaires (young people)	Each participant was questioned each week concerning those with whom he would rather work, spend leisure time, and who he felt had a major work load, etc.
Attitudinal Inventories (parents)	Questionnaires on interviews were administered to each parent three times during the project period Questions about their youngsters' feelings, as well as their own, were included.
Task List Inventory	At the end of the first and last week of the project, each parent and each of the four staff members completed a task list inventory on each youngster. Each person was asked to indicate whether a given task (putting on underwear, peeling potatoes, drying dishes, etc.) was an independent task, semi-independent task—needing minimal assistance from someone else, partially independent task—needing considerable assistance from someone else, or a completely dependent task.
Anecdotal Records	Each staff member kept a log of incidents, problems, and successes during the project period.
Staff Opinionnaire	Each staff member was asked to evaluate the effectiveness of the project, as well as his own effectiveness, and to react to the concept and formalization of the community living center.
Observers' Evaluations	Every person who visited the project was asked to react in terms of the activity observed and the discipline which he represented to such items as amount of adult direction, group rapport, attitudes toward tasks, etc.

There was unanimity of agreement that community living centers are an answer for total life planning for many seriously disabled people who now have a choice of dependency upon family or institutionalization. Although it would be impossible for disabled people to live indipindently as individuals, this project demonstrated that they can live independently in a group. From the community based center, a few individuals could seek competitive employment, and others could attend terminal workshops or work activity training centers. Still others might stay in the residence, working on household maintenance, meal preparation, schedule planning, etc.



Evaluation

Facility. A community living center must be located within a community so that even those confined to wheel chairs can get to a shopping center, library, or church without always being dependent upon someone else to provide transportation. Obviously, a single floor residence would be more adaptable to the individual's needs; but this project demonstrated that with minor modification many multiple floor dwellings could be utilized.

Staff. A professionally trained staff is unnecessary to operate a community living center, especially if selection criteria for participants is adhered to. The demonstration project staff agreed that a lay person with professional attitudes and interest and a concern for and knowledge of people's needs could adequately supervise a center. Minimal supervisory staff would be necessary, since the participants would be self-directing. Investigation should be made into the feasibility of older persons living on social security with a complement of teen age help.

Attitudinal Inventories (young people). All ten of the young people stated that they were happy during the period of the project. Nine of them indicated that they would like to live this way as a life plan. They felt that no one had a major work load. "Just because I can get around easier and get more done more quickly, doesn't mean that I work harder than the others."

Sociometrics. As one would expect, choices of partners varied according to task reported. "I like to cook best with L. because she knows what she's doing." Leaders emerged. No isolates were identified.

Attitudinal Inventories (parents). Generally, parents were apprehensive at the beginning of the project. "I hope he gets enough to eat. He always has a snack at night." Many of the parents were very enthusiastic about the community living center as a life plan. Others indicated that "if this is what he wants, it's all right with me." Once parents are aware that their youngsters want to live independently and are able to alter a relationship which is built upon dependency, they are able to give support to the young people and the concept. They must talk with their youngsters in order to understand what their needs and wishes are for the future.

Task List Inventories. Generally, parents view their children as being quite dependent. The professional staff members generally follow a middle of the road course— "they can do some things by themselves but they need help." The nonprofessional staff rated generally in the independent column. This is perhaps due to the fact that they had no preconceived ideas about what the young people could do. If it took a boy an hour and a half to get ready for bed, this was rated as independent activity.

Observers' Evaluations. Many visitors took the evaluation forms with them to fill out more completely and return at a later date. There has been a little over 87 percent return of the questionnaires. There is common agreement that this project points the direction for total life planning.

Careful cost accounting of this project was utilized to anticipate a proposed annual budget for a community living center. The results indicate that community living centers, developed on a population of twenty young people with minimal lay supervision, would cost about one-half of the cheapest institutional care. This is accounted for because the residents are the cooks, the matrons, the custodians, and also the board of directors. This demonstration project proved that community living is realistic in terms of dollars and cents. In terms of human dignity, no price tag can be placed on it.

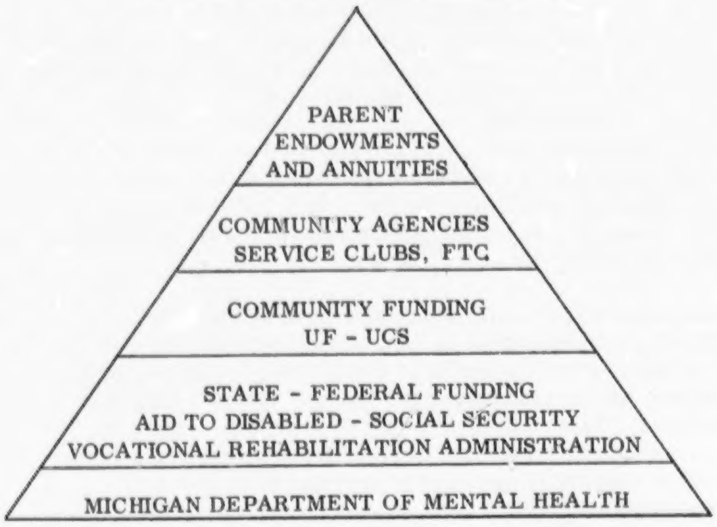
A MODEL OF ADMINISTRATIVE FUNCTION

MICHIGAN DEPARTMENT OF MENTAL HEALTH

WAYNE COUNTY COMMUNITY MENTAL HEALTH
SERVICES BOARD

LOCAL BOARD OF DIRECTORS
COMMUNITY LIVING CENTER
RESIDENT
MEMBER WAYNE COUNTY COMMUNITY MENTAL HEALTH SERVICES BOARD
MEMBER OF A COMMUNITY AGENCY
MEMBER UCS

A MODEL OF FINANCIAL SUPPORT


PARENT
ENDOWMENTS
AND ANNUITIES
COMMUNITY AGENCIES
SERVICE CLUBS, ETC
COMMUNITY FUNDING
UF - UCS
STATE - FEDERAL FUNDING
AID TO DISABLED - SOCIAL SECURITY
VOCATIONAL REHABILITATION ADMINISTRATION
MICHIGAN DEPARTMENT OF MENTAL HEALTH

THE ROLE OF THE RESIDENTIAL INSTITUTION IN THE CONTINUUM OF SERVICE TO HANDICAPPED CHILDREN

John B. Mader

The importance of the role of the residential institution in the continuum of service to handicapped children is underestimated. This is perhaps due to the fact that institutional administrators too often perceive their responsibility as extending from time of intake to time of discharge. Such perception fails to acknowledge the importance of the intervention of previous and succeeding individuals and agencies to the total treatment plan.

Major sources of referral of children to institutions include schools, parents, physicians, and other agencies. Each, of course, has demonstrated an interest in the welfare of the child. Of more vital concern is the fact that each will maintain continuing contact with the child following institutional intervention. It would appear then that the evolvement of a residential treatment plan should not only depend upon a child's previous experience as reported by the referral source, but should be dictated as well by our expectancy of the child's performance following discharge.

Thus it may be said that institutional responsibility in the continuum of services of handicapped children extends from a point prior to intake to a point following discharge. Failure to accept this responsibility results in judgmental errors affecting treatment and the welfare of the child. Examples of such errors relating to educational programs within institutions are as follows:

1. Failure to request preadmittance data which would minimize or eliminate need for psychoeducational assessment within the institution and would result in a more adequate educational program. Information relative to the child's previous school performance, social adjustment, previous failures, school attempts to alter ineffective behavior, and estimates of the school's perception of its ability to meet the child's needs following discharge are vital to adequate institutional programing.

2. Failure to maintain contact with the referral source during the child's stay in the institution. Depending upon the reason for institutionalization, schools and other referral sources tend to welcome the intervention of others and seldom stop to realize that at some point in time they will be required to resume educational planning for the child. It is essential that the institution provide feedback to referral sources during the child's residence that not only helps remind them of their continuing responsibility to the child, but, hopefully, aids them in designing an effective educational program for the child, following his release.

3. Failure to coordinate the institutional program with that offered by outside agencies, such as the public schools, to which the child will be returned and in whcih he must be competitive. Many institutions offer "vacuum packed" treatment programs. Their failure to relate their program to that of the system to which the child will return often results in failure which is essentially unrelated to the original reason for institutional referral.

4. Institutional planning often fails to include preparation of the child and the referral agency for discharge. Patient release without previous contact with the agency, usually the public schools which must assume responsibility for the continuing education of the child, results most often in failure. The referral source must be made aware of the instructional methods used by the institution, the management problems, and the level of the child's performance. They must be provided this information in sufficient time to assess the manner in which they may most appropriately meet the needs of the child.

5. Failure to support the child and the public school following the child's discharge from the institution. Institutions which fail to encourage feedback from the public schools following a child's

discharge seldom are aware of a child's postdischarge failure. In many cases, failure could be avoided if the institution demonstrated not only a willingness but a desire to work with the schools to assure a child's success.

6. Failure to assume responsibility for the recommendation of alternatives if it is deemed that the institution cannot effectively meet the needs of a child. Often a child's parents turn to an institution as a last resort. It is not sufficient to tell any referral source that a child is not eligible for, or will not profit from, the available institutional program. Institutions must assume responsibility for recommendation of alternatives or run the risk of adding to a child's problem, rather than minimizing it.

7. Failure to become aware of the programs and services offered a child by the various referral agencies. Every institution must accept the responsibility for learning what special education programs, services, and therapies are available to a child within the state and within his community. This information is readily available and is invaluable in planning for the child's eventual discharge, as well as in providing insight into the development of effective treatment programs within the institution.

An analysis of these institutional failures leads one to the conclusion that the institution has greater responsibility for the welfare of children than is possible through an intake to discharge philosophy. The true continuum of service extends from a point in time prior to intake to a point beyond institutional treatment. Institutions adopting this point of view are offering more effective service to our handicapped youth and are making institutions a vital part of a total community treatment plan.

TEACHER EDUCATION

RESEARCH DESIGNS FOR ASSESSING TEACHER EDUCATION PROGRAMS IN SPECIAL EDUCATION

James B. Macdonald

Research in any phase of teacher education is not presently noted for its productivity. An increasing number of studies may be noted in the literature, but the vast majority of these are better called innovations with some evaluative criteria applied, rather than systematic research. In fact, the profession knows little about program effectiveness that has been gained by careful research procedures. There are at least three reasons for this.

Climate and Competence of Teacher Educators and Institutions. Teacher education institutions have by and large been characterized by a climate of ideological commitment. As such, they have been resistant to so called objective examination of their programs. The commitment of the profession has been such that practices hard won from experience are not easily tested or manipulated in a research context because of a fear that harm may be done to a genereation of children should tested practices prove less effective. In other words, research involves risk taking, and teacher educators have not been overly acceptant of the process of deliberate risk taking. This phenomenon might be called hardening of the ideological arteries.

Further, universities and colleges as a whole have not been especially open to program research. Although many scholars appear to feel free to manipulate children's programs and public school teachers' behavior, university staff members in turn have tended to hold to a concept of academic freedom which precludes manipulation of content and teacher behavior at the college level. As a consequence, the climate for program research in teacher education has not been one that encourages activity.

Also, teacher educators, as a whole, have not experienced a great deal of research training. Thus, the necessary attitudes and skills for research are generally lacking in the profession. This, of course, further complicates attempts at program research.

Problem of Teacher Effectiveness. A second reason for difficulties in teacher education research pertains to the problem of the criterion variable(s). There is a general lack of agreement about what good or effective teaching entails. This is especially noticeable in two aspects of the problem—the specification of theoretical models and the selection of measuring instruments.

The confusion in the theoretical realm is noted quite readily if one looks at studies on research in teaching. Bellack (1965), for example, looked at teaching from the perspective of games. Thus, he examined teaching in terms of the effective utilization of moves and rules in the classroom setting. The nature of teacher solicitation and moves provides one framework for looking at effective teacher performance.

Fattu (1965), on the other hand, comceptualized teaching as problem solving. He asserted that only about one-third of a teacher's activity is of a professional nature, in the sense that it involves special training to solve problems. The remainder of his time is clerical, custodial, and generally amenable to common sense operations. The problem solving is related to such things as programing decisions, diagnostic decisions, and motivational decisions.

Maccia (1965) and Flanders (1964), however, see teaching as a process of influence. Although their specific conceptualizations vary considerably, a good teacher by Flanders' orientation tends to be viewed as one who is indirect in his influence; while in Maccia's terms a person whose influence brings about rule governed behavior on the part of children is effective.

Many other positions are available. There are, in fact, almost as many theoretical positions as there are researchers (Bellack, 1963). It is apparent, then, that no general agreement on productive theoretical models for viewing teaching is in existence.

Perhaps even more disturbing is our lack of confidence in the validity of measuring instruments. Thus, even when researchers agree, for example, that understanding of individual differences is crucial for good teaching, there is a possibility that we could not produce a universally acceptable measure of the understanding of individual differences.

Our operational definitions or measurement problems leave much to be desired, both in terms of their validity and in terms of their scope of concern. It often appears that the things or qualities measured most validly tend to be those aspects of concern with least generality and potential significance. Thus, the hypotheses we test and the data we collect are both open to constant and considerable criticism.

Programs in teacher education should be based upon some theoretical model of teaching and some specification of effective teaching. Although the problem of translating a theoretical model into a prescribed series of experiences still exists, there is assuredly little hope of intelligent prescriptions without the model. Thus, new experiments in teacher education are in need of theoretical models and in need of operational definitions that can be used to assess the outcomes of the programs.

Problems of Design. A third set of problems arises through the lack of an adequate research design. What research we have done in teacher education has been predominantly characterized by what Stanley and Campbell (1963) have called quasi-experimental and pre-experimental or evaluative designs, as well as survey and descriptive studies. Frequently, these designs have been used without awareness of their limitations. Thus, the hoped for outcomes are not achieved, because the design was inadequate for the task at hand.

The major portion of what follows will be devoted to an examination of the problem of design. However, it will be important to remember that the conditions which stimulate research, the theoretical bases for research, and the measurement problems in research cannot be solved by better designs alone.

The Function of Design in Research

The function of design in research is essentially to provide a logic for control. Design is, in other words, primarily a logical technology. As was suggested earlier, a research study of little significance can be well designed, or data of little validity can be carefully controlled.

A design functions to assure the validity of the results of a specific study and to provide some basis for generalizing the results of other situations. These design functions Stanley and Campbell (1963) refer to as the internal and external validity factors of design.

Internal Validity. The appraisal of internal validity raises questions of control such as:

1. Did anything outside the program happen to its subjects during the research period which could account for the results?
2. Would the results have happened anyway, regardless of the experimental program—perhaps due to maturation?
3. What effect has the testing itself had on the outcome? For example, do pretests themselves provide learning experiences which affect the outcome?
4. What effect has variation in conditions of observation or assessment between pretests and posttests had upon the outcome?
5. What effect has statistical regression toward the mean had on the outcome?
6. What effect has the specific process of selection of subjects had on the outcome?
7. What effect has the mortality,or loss of subjects from groups, had on the outcome?
8. What effect has interaction between any and/or all of the above had on the outcome?

External Validity. When concerned about how generalizable results may be, provided they have internal validity, one may pose such questions as:

1. Has there been any interaction between testing and treatments, so that results are predicated not only upon the new program, but also upon the research procedures?
2. Has there been any special effect due to the interaction of the treatment and the selection of subjects? How representative are the subjects.
3. What effects have the special arrangements in program and the students' awareness of being in an experiment had on the

generalizability of the results?
4. What effect has the unit of research, e.g., classroom groups, had on the outcome?

It is immediately apparent that the control of all these logically invalidating variables is indeed a difficult task. Nevertheless, whether a design can control all these factors or not, it is necessary at least to be aware of any potential weaknesses in control. Fortunately, the problem of control is not simply one of logic. Many times we can assume control of at least some of the internal and external validity variables by the nature of the research being done.

For example, if our research plan included the provision of experience for preparing teachers to apply electric shock selectively to autistic children, we might assume with reasonable assurance that our students have not had much prior experience with similar activities, and thus, the chances of anything occurring outside the program which would facilitate this learning and invalidate results are not great. In other words, the nature of the experiment itself may indicate that some control problems need not be of crucial concern.

Thus, in cases where the absence or presence of some behavior can be assumed to be predicated almost solely upon program experiences (such as the teaching of a sign language to teachers of the deaf), then there may be no direct corollary (as in the case, for example, of testing two different sign languages) to be controlled. In this case, it is plausible to assume that results which accrue from the introduction of this added element for which there may be no direct extra program behavioral corollary have been plausibly controlled.

Common Research Designs

Preexperimental or Evaluative Design. The simplest common design is evaluative in nature. A group of students is selected, pretested, given an experimental program, and retested to see what progress has taken place. What this essentially represents is a rigorous evaluation of a program. It should be obvious that many control questions are left in doubt.

Thus, if we test students on their knowledge of mental retardation, then put them through a series of experiences and retest them, gains may be due to any number of circumstances other than the instructional procedures. Would they have shown as much progress without instruction? Have there been any TV specials, newspaper publicity, or other media coverage of the same subject which could help account for the growth? Did the pretest stimulate learning? Are results due to the specific nature of this program, or just to the fact that students have had some program?

Control Group Designs. The most powerful control techniques in design are the development of a control group or groups combined with the use of randomization procedures for selecting subjects. Thus, from a population of, say, 60 preservice exceptional education teachers, two groups of 20 each might be drawn by random sampling. One group, the experimental, would be given the new program, course, or experience. The second group would not receive the experimental treatment. Pretests and posttests would be given both groups, or in some cases posttests only might be given. These procedures would logically provide for experimental control of all the internal validity factors.

A more sophisticated design involves four groups and is called the Soloman Four Group Design. In this procedure, four groups are drawn randomly from a population. The first two receive pretests and posttests, with one group getting the experimental treatment as indicated above. A thrid group receives the treatment with no pretest, and the fourth group receives the posttest only. This design allows one to parcel out the effects of pretests and treatments from the total process. In most situations of program research, the four group design is difficult to manage administratively. The predominant experimental designs utilized are two group designs.

Quasiexperimental Designs. The problems of ongoing programs and the social situation of staff cooperation and school policy often make the pure experimental designs difficult to manage. There are a number of program designs called quasiexperimental by Stanley and Campbell (1963) which can be utilized under these circumstances. What I believe to be some of the promising ones for program research will be mentioned here.

The nonequivalent control group design is one common variant. The difference between this design and the pure control group is that students are not assigned randomly to groups. Thus, two classes selected by regular college or university procedures may be utilized in which pretests and posttests are given and one group receives a special treatment. Although a nonrandom assignment is weaker than the randomized procedure, there is usually no special reason to believe (except in homogeneous grouping situations) that a nonrandom assignment is necessarily related to factors which affect the experimental variable. Consequently, this design can be a very useful one.

A single modification of the evaluative design makes possible even greater control than the nonequivalent control group. If all students must receive the same program, it is possible to assign them, prior to testing, by randomized procedures into two groups (not necessarily separate physically). The first group is pretested, then all receive the new program, and the second group is then posttested.

A multiple time series design also has program promise. This procedure might be illustrated by breaking a population into two groups (e.g., two classes). Then repeated measures are taken over a period of time and an experimental treatment inserted somewhere in the middle for one group (for example, a special observation experience). Comparison can then be made with nonequivalent groups and also before and after the treatment with the experimental group.

Nonexperimental Designs. There are also a whole host of nonexperimental designs. These designs have, in fact, been the most prevalent (along with the evaluation design) in educational research. I would like to mention briefly three such patterns: the case study, the survey, and the job analysis.

A study by Mackie, Kvaraceus, and Williams (1957) illustrates the survey approach. Seventy-five teachers of socially and emotionally maladjusted children were presented with a list of competencies to rank in order of importance. The results of this opinion survey are irrelevant here, but the use of this list of competencies as a basis for building a teacher education program would be an illustration of a survey method. This would be fraught with difficulties. At best, this list could serve as a source of hypotheses for experimental or quasiexperimental testing.

Job analysis is a further elaboration of the survey procedure. The difference here is that, instead of asking the teachers, the investigators might identify good and poor teachers and then observe the behaviors or competencies which distinguish them. This procedure does provide insight for teacher education, but it does not assure that the competencies of the good teachers are amenable to teacher education. This design also is essentially most useful as a basis for generating hypotheses to be tested by more rigorous designs.

A case study approach could entail, for example, the careful depth recording of characteristics, experiences, and behaviors of students in a teacher education program. After these students have been followed into teaching, it would then be possible to look for patterns of characteristics that distinguish the competent from the less competent.

These patterns could then be developed in some program format involving selection, experiences, and qualities which would be tested experimentally.

The major characteristic of nonexperimental designs is that they are primarily useful for developing hypotheses and experimental patterns to be tested. They are not nearly powerful enough in their control factors to base innovation in programs upon them with any assurance of worth. Unfortunately, much of the teacher education research in special education has been of this character.

A Word about Analysis

The analysis of results obtained by testing a sensible hypothesis placed in a well controlled design with data gathered by valid and reliable instruments must still be analyzed for its significance. The full cycle of research involved (a) an hypothesis, (b) the collection of evidence, and (c) the making of inferences from the evidence. All three are set within the logic of a research design. I shall not attempt to deal here with statistical analysis per se, except to make three general comments.

First and foremost, a design should be selected with a statistical procedure for analysis in mind. It is often the case that statistical procedure can dictate other general design characteristics. There is nothing quite as frustrating and often times wasteful, as designing a study, collecting data, and then trying to identify an appropriate statistical technique. One is well advised to build one's analysis procedures in the planning stages.

Further, statistical analysis itself does not prove anything, in the common sense use of the term. Analysis as a part of design is an inferential process. It is a process which, in essence, provides greater assurance that the inference one makes about the effectiveness of the experimental program is most probably correct. The inference itself, however, is a human judgment based on the probabilities of error that are tested statistically. Statistical analysis is a tool for helping justify inferences and is only as valid as the sum total of a total design and study.

A third suggestion for those who are not statistically inclined or who are mathematically unsophisticated is the exploration of the possibility of utilizing nonparametric statistics. Siegal (1956) has written a lucid and usable book which sets forth the principles and procedures of nonparametric statistics in a highly sensible and understandable form. With the availability of many expert statisticians and/or the use of nonparametric statistics, there is essentially no reason to fear research because of its statistical procedures.

A Potential Illustrative Teacher Education Study

The analysis of classroom interaction reported by Gallagher and Aschner (1963) might serve as a basis for developing a teacher education study. Gallagher and Aschner's report dealt with the investigation of productive thought in gifted children. Following the work of Guilford (1959), Gallagher and Aschner examined, among other things, the kind of thinking called for by questions teachers ask children, and the kinds of answers children give. Questions and answers were categorized as (a) cognitive memory, (b) convergent, (c) divergent and (d) evaluative. Among other things they found that teachers vary considerably but tend to focus on cognitive memory and convergent questions and that by and large children respond in kind. Thus, teachers get the kinds of thought in answers that they attempt to elicit.

One can sensibly argue that good teaching, in the sense of eliciting productive thinking on the part of students, should consist of many questions which elicit divergent and evaluative responses, as well as cognitive memory and convergent thinking. And since teachers apparently do not tend to ask for these higher level responses, it could be argued that they need to be made aware of the possibilities of asking other kinds of questions and be provided with opportunities to practice the development of skill in a wide repertoire of potential questioning behaviors.

Provided one accepts the reasoning involved, the next step would be the development of a viable procedure for developing awareness and skill in questioning which would increase the production of divergent and evaluative responses in children. One such procedure might well be the development of a special field experience for students. Over a specified period of time (for example, one semester), students could be given a practicum in teaching which involved discussion of questioning behavior, the variety of possibilities, and the desirability of eliciting divergent and evaluative thinking. Twice a week one student in the group would be given an assignment which involved the teaching of a group of children. The student would provide plans for the rest of the class, then teach the children while the other members of the class watched over closed circuit television. Each session could be videotaped and played back if desirable. The student teacher would then discuss his lesson with the class and the instructor could help sharpen the analysis of questioning behavior.

To test the efficiency of this program procedure, a random sample of 50 students would be drawn from the total pool of preservice personnel and placed into two groups of 25 by further random sampling. Each student in both groups could be videotaped at the beginning of the semester, and a team of observers categorize their questions and the pupil responses. The experimental group would then engage in the special procedure described above, while the control group engaged in a participation experience with class discussion of problems they were encountering. At the end of the semester each student in both groups would be videotaped again and the same assessment procedures utilized.

An analysis of covariance could now be utilized to assess whether the change in questioning behavior (i.e., the evaluation of more productive thinking on the part of students) had occurred in the experimental group's performance. If the differences were statistically significant between groups, we might then plausibly infer that the special treatment was indeed effective and build it into the regular program.

Two Approaches to Teacher Education Research.

In conclusion, I should like to indicate briefly what I see to be two major avenues for developing experimental programs for the education of teachers. These alternative positions might best be called macroteaching and microteaching approaches. They represent two dramatically different approaches to the attempts to identify specific competencies in teaching, which are then practiced by teachers with careful and appropriate supervision and continuous feedback until students have mastered these competencies.

The Stanford program is characteristic of this approach and is, in fact, the source of the term microteaching. Bush and Allen describe the process in the following way: "The micro-teaching clinic allows (ed) candidates to practice relatively small, discrete technical skills with intensive supervision, immediate critique, and opportunity to repeat the practice session, if necessary" (p.5).

Teachers in their initial phases develop skill with small groups of children in such competencies as varying the stimulus situation, precueing student responses, eliciting student participation, controlling participation, and conducting reflective questioning. After gaining the security of these skills, students proceed to regular student teaching and other course work with emphasis upon developing a flexible and reflective use of the basic skills in actual decision making and performance.

Macroteaching, on the other hand, is predicated upon beginning with highly general or global qualities of teaching. A broad organizing framework is presented and then continually refined throughout the program by the application of the framework and the analysis of its implication in a variety of specific contexts.

Macdonald and Zaret's study of openness and flexibility in teaching is a case in point. They found in a previous study (1965) that reasonably accurate predications of student success in teaching could be made very early in the teacher education program on the basis of the judgment of experienced university supervisors, based upon what they felt was a global or general impression. Following up this global concept, they analyzed teaching transcripts in a second study in terms of opening versus closing behavior (mainly verbal) on the part of teachers and the concomitant opening and closing responses of children. They were able to reliably categorize teachers' and pupils' behavior in this manner. The open teacher phases (transaction oriented) led to searching, experimenting, evaluative, and divergent student behavior, whereas the closing teacher (role or task oriented) led to cognitive memory, parroting, and stereotyped responses on the part of children.

The suggestion growing from this research for teacher education programs is that the possibility of building from the general to the specific, rather than from the specific to the general as in the microteaching procedure, is a second theoretical style for constructing program models. More important, what both approaches suggest is the necessity for systematic rationales for teacher education which, in turn, can be formed into a research design and tested esperimentally.

The need for research in special education programs is glaringly apparent from Blatt's (1966) review of research on the preparation of special education personnel in the February, 1966, Review of Educational Research:

> The following review may indicate that there has been remarkable little change since 1959 in the status of research on the preparation of special education teachers. Little experimental work has been completed; there is, in fact, a scarcity of any systematic study of the problem, whether historical, descriptive, or experimental (p. 151).

Blatt summarized his review in the following manner:

> A survey of the literature between 1959 and 1965 concerned with the preparation of special education personnel disclosed no experimental studies and few investigations of any kind that could be classified as systematic research. The few descriptive studies completed fall into the opinionnaire-questionnaire category. In contrast with the general development of research programs in special education due to the tremendously increased support now provided by federal agencies and private foundations for both research and graduate education, the total impact of findings reported here is somewhat disappointing (pp. 158-159).

It is my opinion that this is something of an understatement, and that although research is difficult and risky it is still the best single approach to the development of better teacher education programs and consequently improved instruction for children.

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PRACTICUM CONSIDERATIONS FOR TRAINING TEACHERS OF EMOTIONALLY DISTURBED CHILDREN

Alice C. Thompson

Planning the final stages of training experience for prospective teachers of emotionally deviant children presupposes certain experiences and a certain philosophy. It may be assumed that the student has acquired sound and exhaustive basic information with respect to learning and behavior problems; that he has had breadth of observation in various special education settings—sensory impairments, intellectual deficit, orthopedic handicaps, psychiatric involvements, cultural deprivation—and that he is now ready to put his preparation and skill to the test of confrontation.

It must also be assumed that he is equipped to do the minimum teaching fundamentals: put the child ahead of the method; tolerate what children's misbehavior may provoke in himself; exercise ingenuity in ferreting out alternative modes of dealing with resistant problems; estimate accurately what each child is likely to produce and to be day by day; hold to the reality that no child is hopeless nor any child likely to burst miraculously into recovery; withstand the probability that a child's apparent failure is failure of the method, rather than failure of the child; cope with the shifting emotional climate in which he must work; and listen to the communications of behavior more sensitively than to the communications of words.

The supreme function of the practicum span is more than to offer the trainee an opportunity to gain experience in techniques of classroom management—more, even, than to demonstrate his capabilities. The crucial element in this period is the harmonizing of his own peculiar personality attributes with the enduring principles of human behavior as these manifest themselves in disordered children. Unless he can adjust his own constitution to the rigors of living with maladaptive behavior all about him, unless he can exploit his own nature in the interests of its amelioration, the outlook is doubtful. He must find what works for him and what are the ingredients of his own success. This stage is intensely personal and leads to a kind of loneliness that can be alleviated only in part by wise counsel from without. This is a commencement. This is the beginning of a career whose products are to be measured in terms of human emotion, both for the teacher and the child.

Much as we may emphasize the academic skills required by a literate society, much as we must strive for the behaviors that will render the deviant individual safe and productive in the society (e.g., ability to carry responsibility, exercise appropriate judgments, get along with others, internalize the social dicta), much as we wish to eliminate the conspicuous handicaps (motor clumsiness, the peculiar look, bizarre behavior, inappropriate self-management, blatant losses of control, rage behavior, fantasy and withdrawal, outrages to public sensitivity), much as we may wish to save the taxpayers' money by keeping individuals from public charge, much as we wish to gratify our own needs to be right about what is wrong with a child and what methodological steps are necessary, still the simple facts remain that the teacher of special children operates in a perpetual context of individual human feelings melded into unique group ambiance, his native sphere is the emotions, his first moral obligation is in terms of effect, and the "worth it ness" of every activity presented for each child's benefit is the ultimate test of classroom effectiveness. If a child learns to read, write, spell, and deal with arithmetic functions, the final rationale lies in the extent to which these learnings contribute to his satisfaction. This principle is not enunciated out of sentimental hedonism, but out of raw observation of centuries that man does not live by bread alone.

The classroom is an assignment in effect, not arithmetic; though one avenue of fulfillment may readily be through mastery of number concept. It is an assignment in the development of behavior controls that may profitably be achieved through regular completion of academic tasks. It is a workshop in human relations where fear, self-doubt, aggressions, and failure meet their antidotes in such events as becoming able to pass another child without attacking him, tolerating a neighbor at close range, or learning that warmth and affection are not synonymous with surrendering one's autonomy.

Work with emotional deviation is inseparable from work with learning disability, for disordered emotionality represents faulty learning as surely as do reading reversals. An overlay of emotional disorder, concomitant with and consequential to learning failures, social failures, and sense of difference is too well documented to require restatement. Everyone has witnessed the crippling effects upon the learning process of inappropriate feeling states.

At this final stage the student in training needs experience with individual children, with very small groups, and with groups of saturation size (usually not more than 10 or 12), plus resources to which he may turn for aid. Each area of practice requires enough time to demonstrate the student's potential, consolidate his learning and confidence, test his hypotheses, bring about observable dynamic changes in student-child relations, refine techniques, and measure progress.

A one to one opportunity, preferably for several weeks' or months' duration, can provide certain advantages to the student. For the first time, perhaps, he has time for analysis in depth of the child's status—family background, developmental sequences, etiological correlates, medical evaluation, achievement level in academic skill areas, psychometric reports, sensory functioning efficiency, variabilities in skill performances and day to day behavior, learning modes, emotional patterns, sensory and motor perceptual development, communication skills, concept formation, maturational lags, and others. Here he has opportunity to test his own interpersonal skills and sensitivities through the process of building a firm, warm, and productive relationship with a disordered child. He can become conversant with the vagaries of maladaptive thinking and feeling. A child who requires individual attention may need to feel that a stronger influence than he can mobilize will support him in his struggles against his own impulses—a trustworthy and significant adult who comprehends his peculiar system of to be soughts and to be avoideds.

Here the student can begin to distinguish passing and episodic disturbances from those that rise out of severe adaptive deficiencies and to distinguish fruitful play and exploration from random restlessness, perserveration, and drivenness. He can see in action how to incorporate what are usually thought of as play activities into learning sequences, both behavioral and academic. He has time, for example, to watch motor activities in detail and to provide for the over, under, and around activities so urgent for the motor retarded young child. He has the singleness of observation to tally the child's "worth it" responses, so that he can vary his own presentations to increase the cooperativeness of the child. Does the "worth it ness" of the activity seem to be in terms of the glow of success, the relief of tension, the excitement of mastery, the intrinsic or extrinsic attainment of some reward, the illumination that comes with first intimations that one may not be entirely stupid, the stillness from initial tolerance of warmth and love from another, the relaxation when the child no longer need fear his own impulses or seek escape from some impending catastrophe?

Here the student draws assurance from his implementation of disciplinary controls. He proves, rather than merely hopes, that he can direct the energies of the disheveled child into the service of personal development. He observes that restrictions which he has been regarding as guidance may only be the maintenance of stultifying repressions. He learns how to bear down on the child with the sturdier ego, how not to press too hard on the child with fragile holds, and how to monitor the particular limits that provide security and reassurance for each (when to permit expression of feeling, and how to dilute and control these before they become overwhelming). Practice in the light touch handling of the mutlivariate situation is indispensable to growth.

The student may participate with the child in primitive functions of sitting, standing, walking, reaching, and using his own body as part of the child's to piece out the desired motility and experience. He begins to sense as well as to possess information about primary sources of stimulation: those from their own bodies; those from affective awareness of people; and those that represent the intricacies of external mechanical impingement, complicated by the perpetual internal static so characteristic of the motor driven child. Recognition of behavior manifestations of internal stress become easier: clamminess and pallor, the taut facial expression, rocking or jerking movements, strange use of the eyes, the barely perceptible shrinking, shifts in verbal or other communication habits, toilet urgencies and lapses, flight and clinging, assaultive and catastrophic episodes.

Assignment with a very small group provides important experiences. Here the student has opportunity to study in some detail the dynamic ebb and flow of interpersonal relations among disordered children and between them and the teacher as an authority figure and friend. He begins to identify and restructure his own strengths and weaknesses in group management without the sometimes intolerable stress of a saturation group. He can meet and appraise the requirements of adequate preparation to suit the individual needs of children, with appropriate measures to evaluate behavior and learning progress.

He has opportunity to be in full, sustained charge of a group (especially in case the limitations of training settings preclude such experience with a saturation group) in order to test his readiness to carry the full weight of a disabled group without a master teacher in implicit command. He observes growth nuances relating to group association; ego strength and self-confidence; and skill development in visuomotor, listening, and communication areas, as these bend and change in group settings.

Through group contacts, the student becomes increasingly comfortable in giving up rigid requirements and authoritarianism without temptation to abandon restraints or tolerate lawlessness. He sees personality development in the forms of increased controls, increased ease, more successful contacts, extended learning skills, and academic progress—all emerging from the interplay of internal forces with influences from peers and the guiding and molding boundaries provided by the authority figures.

One transitional matter is of great importance: the carryover to group settings of the sensitivity that began to develop toward the individual. How can one give the same range to individual growth in a group that could be offered in the individual situation, and at the same time fuse in the additional advantages of social contacts? Demands upon the trainee increase geometrically. He must now distinguish simultaneously between children who can with calculated pressure be led to consistent productivity and those fearful and fragile ones in whom pressure generates panic; and he must apply simultaneously the detailed and structured sequences to which the hyperkinetic, short attention span child often responds so well and the gentle persuasion without which the fragile child withdraws in panic. Now he attempts with more than one child before him to insure success experience for each—academically, socially, personally. He wrestles with the problem of eliciting application to tasks that the child already believes he cannot master. For many, there is particular desolation from being wrong.

Perhaps the most critical factor in moving from work with one child to more than one is to evaluate the impact of one personality on another. Forces interact, reinforce, and mount in the group. How can merged and compounded feelings of anger, confusion, frustration, and helplessness be channeled into productive classroom performance?

Once more the student applies his techniques of evaluating the "worth it" qualities for each child. Was this act "worth it" because of the wielding of power, the triumph of superiority? Does one see the difference between the bittersweetness of revenge acts and the encouraging assaultive episode on the part of a withdrawn child? Is today's intentness toward another child an intimation of the rapture of making a friend? Is the far out quality a byproduct of unaccustomed approval? And with what tenderness the maturing teacher views the green shoots of realization that one is not wholly stupid nor the world entirely hostile. What could surpass the experience of looking at a product and for the first time considering it good?

Since the practices of public education involve saturation groupings, the trainee must now move into a full size group of behavior disordered children, where challenges that previously could receive studied attention must now be met through his own implicit and intuitive resources. Techniques that formerly were labored and self-conscious must become fluid and natural. Good days and bad days alike can contribute to the growing authority of the student with sound potential.

Once more the complications are compounded. The student is faced now with problems of weaving all of the amazing variability of a larger group into a fabric beneficial to all. Here is the apex of capitalizing upon the plasticity that permits functional variation as each child participates in each process. Here he must render a vast array of disconnected positive and negative valences into supportive feeling states.

In the saturation group, the student's ability to avoid pitfalls meets its acid tests: mistaking descriptions of behavior for explanations of behavior; assigning children to ill conceived categories and acting upon assumptions derived therefrom; assuming that special skill training as it may moderate special deficiencies will cure the total condition; supposing that exposure to learning or the motions of application will bring about learning; failing to hold in consideration the evidence that all human data input is in terms of codes peculiar to the individual, codes that render the information unrecognizable as they make impact upon and integrate with the associative and interpretive centers of the nervous system; assuming that interferences in learning are primarily on account of generalized innate limitations of mental ability; forgetting that children with irregularities and distortions of functioning will find the demands of growing up far more hazardous and traumatic than does the normal child; misinterpreting the faulty signal systems of total communications that distort not only speech, gesture, and features, but also the associative retrieval and utilization processes fundamental to it; permitting quiet and the motions of cooperation to pass for constructive action; and setting limits too soon or not soon enough.

As indispensable as facing children in the real classroom climate is the frequent parallel staff conference. Here the student verbally explores the problems, considers and reconsiders each individual child, symbolically reenacts anxiety provoking episodes, reviews his own impulses, tries out his questions on the experience and opinions of his colleagues and supervisors. In these sessions, perplexing issues can be analyzed, plans developed for alternate procedures, hypotheses winnowed for soundness. Strength and enthusiasm are restored. There is place for depth inquiry into the psychodynamic forces at work among the children in the classroom and between them and the teacher, as well as within the teacher. Knotty problems and theoretical issues receive attention. How can we be sure that progress is taking place and that apparent learning is real and lasting? Is a child who seems to be learning engaging primarily in rote memory—in and out with little permanent trace and little infiltration to associative uses? How can events be transformed beyond their eventfulness and become guides for action?

Only, perhaps, in the thoughtful exploratory sessions with peers and supervisors does it finally become clear that everything is dynamically related to something else; that the human being is more than an agglomeration; that live tissue is a kind of solid state conductor acting in toto as a recording, processing, and feedback system that either influences, enlivens, and enriches, or contaminates and deteriorates the whole. Emotion still plays a major role. It suffuses and illuminates the conference sessions and generates the inexhaustible energy required for successful work with difficult children. It carries over into special regional conferences and professional meetings.

And while we are providing the salty finale of the training process, let us take care to include a sine qua non of the maturation process—a friendly, competent shoulder upon which to cry at the inevitable moments of bewilderment, frustration, and despair. Nothing can substitute for human reinforcement and encouragement, and this might well be the single crucial element of the whole practicum sequence.

Somewhere, sometime during this period comes a moment of truth for every individual preparing to spend his professional life in the interests of emotionally disturbed children: Is this for me? If the answer is unqualified confidence, there may be danger ahead. If disenchantment is progressive, the answer is no. In between is a state of healthy panic that augurs well for success and is, perhaps in addition, a tried and effective tranquilizer for the most difficult moments.

INTERNATIONAL ASPECTS OF SPECIAL EDUCATION

SPECIAL EDUCATION IN THE NETHERLANDS

Wietse de Hoop

To give an introduction to special education of a country in the short time available for a presentation in our present session is not well possible, particularly when that country is the Netherlands, with a rich and varied array of special educational services. Consequently, this presentation will be rather eclectic in nature. I will try to compare some aspects of the Dutch special educational provisions with similar aspects in this country, particularly those aspects which are presently of interest to the various workers in special education.

Historic Development

Before the 20th century, special education in the Netherlands developed along the same lines as in other countries in Europe and in the Americas. The first institute was a school for the deaf established in 1790 by a minister of the French section of the Dutch Reformed Church, a certain Henri Guyot, who had learned the art of teaching the deaf from his famous countryman, de l'Epée. Initially, this school accepted retarded as well as deaf children. In 1820 the retarded and the retarded deaf were segregated in a specific classroom.

The second institute for the blind followed in 1808. The initiative for establishing this institute came from four masonic lodges. A Catholic institute for the deaf followed in 1840, two Catholic institutes for the blind began their work in 1859 and 1882, while the freemasons initiated their second school for the blind in 1880. The first school for mentally retarded followed in 1855. This school was sponsored by the Queen and was under the direction of the Dutch Reformed court preacher. Together with the Queen, this gentleman had visited the famous Guggenbühl in Switzerland. A similar school for retarded and speech handicapped children was founded in 1858. Two schools for inmates of residential institutions for all sorts of mentally ill persons followed in 1851 and 1892. Day classes for the mentally retarded followed in 1896 in Rotterdam. Finally, in 1899, the first day school for retarded children opened its doors, this time in Amsterdam. This, then, was the situation when the new century began.

Differentiation and Multiplication

The period from 1900 to 1950 may be characterized as a period of differentiation and multiplication, with special emphasis on the area of mental retardation. I mentioned differentiation first and will try to indicate why. First of all, differentiation took place in the kinds of exceptional children to be included in special education. In addition to the schools for the deaf, a few schools for the hard of hearing began to function. A similar differentiation took place between the schools for the blind and classes for visually limited youngsters. A beginning was made in educating crippled children, epileptics, and emotionally disturbed. Early childhood education for the deaf and the blind came into being. Associations of teachers and other workers were established for the mentally retarded, the blind, and the deaf. Workers for trainable mentally retarded and vocational rehabilitation services for mentally retarded, particularly the EMR's, began as early as 1921. The schools for the mentally retarded developed separate classes for the trainable; in the larger population centers, several such classes were soon to be combined into specific special educational schools for trainable mentally retarded.

Special courses and workshops were developed for instruction of special teachers; another very significant development was the so called medical educational clinic, which plays an important role in the identification and placement of mentally retarded children. I may just mention that from the very beginning of public care for exceptional children, there have been close cooperation and an intimate relationship between physicians and special teachers. Early in this period the special educators began to develop a methodology of their own and a different approach to teaching, based on the type of child they were to work with and the type of individual which they hoped to produce. This significant aspect is known in Dutch as didactics. Finally, the advent of the Binet-Simon publication of the intelligence test made deep inroads.

In addition to differentiation, I characterized this period from 1900 to 1950 by the term multiplication. Though all the areas of special education increased their numbers of students and teachers, it was very specifically the area of the mentally retarded which multiplied. In December, 1903, there were eight establishments for retarded, namely, three day schools, two day classes in elementary schools, and three schools in residential institutions. In February, 1929, this number had increased to 13 schools in residential institutions, two day classes in elementary schools, and 63 day schools. The number of students increased in the same time from about 200 to 6700. In 1939, just one decade later, this number had doubled to 13, 675 students, attending 141 schools. During the second world war, little progress was made. The school census of the last day of the year 1947 gives us a good picture of the total situation of special education at the end of this period:

	Number of Schools	Male Students	Female Students	Total
Mentally Retarded	157	12, 390	7, 797	20, 187
Blind	5	209	130	339
Deaf	6	582	423	1, 005
Hard of Hearing	3	181	116	297
Physically Handicapped	3	98	67	165
Emotionally Disturbed	3	337	31	368
		13, 797	8, 564	22, 361

As you can see, more than 90 percent of special education was concerned with the mentally retarded in 1947.

Significant Changes

The year 1949 brought very significant changes. Until that time, legislation regarding special education was an appendix to laws pertaining to elementary and secondary education. In 1949, for the first time, a royal decree was issued dealing specifically with special education. One of the innovations concerned the kinds of education which fell under special education. The six categories which I mentioned a while ago were increased to 14. Those newly added were: schools for children suffering from tuberculosis; schools for children with special health problems; schools for epileptic children and youth; schools for children under guardianship; schools serving as laboratory schools for child study; schools for children with learning disabilities; schools for children of migrants, including gypsies; schools for children of skippers of the barges and small freighters which carry goods, mainly from the big ports, over the dense network of rivers and canals in western Europe. The inclusion of so many new groups brought many changes, as you can imagine.

At about the same time, two other aspects mentioned before also multiplied, namely, the vocational rehabilitation services and the sheltered work environment. The aspect of multiplication will be evident if you compare the services listed for 1963 with those of 1947.

EXCEPTIONALITY	NUMBER OF SCHOOLS	ENROLLMENT
Mentally Retarded	349	40,565
TMR Schools (and 193 classes)	63	7,800
Visually Limited	10	843
Hard of Hearing	18	2,021
Deaf	11	1,344
Physically Handicapped	22	1,546
Emotionally Disturbed	27	1,578
Tuberculosis	13	207
Special Health	18	1,643
Epileptics	2	301
Government Guardians	19	1,585
Learning Problems	74	6,677
Laboratory Schools	4	384
	567	58,694

Presently, it is estimated that slightly less than 90 percent of all Dutch children who need special education do, indeed, benefit from such services.

The Teachers

A few words may be said about the teachers, teacher education, and teacher organizations. From the very beginning, teachers have been recruited from the ranks of elementary and secondary personnel. The state provides a salary increment for the special educator. Notwithstanding this financial lure, few teachers choose to join special education, unless they really like it. Because the great majority of the special educational facilities consist of schools with a teaching principal, the staff of these schools is very stable and known how to cooperate. It may be observed that Dutch teachers are offered continuing contracts only and that it is extremely difficult to fire a teacher.

Throughout the years, special educators have felt the need for additional training. The schools for deaf and for blind carried on their own inservice training programs. But the teachers of the retarded were not in such a favorable position. Various efforts have finally led to the establishment of a two year course, typically taught on Saturday afternoon. When the coursework is completed, the student will write an independent study, usually pertinent to classroom teaching, after which he is permitted to take the final exams. Though several university professors are connected with, and teach in, these courses, on the whole there is little association between teacher education and the universities. The following gives an idea of the composition of the teachers in special education and of the teacher-pupil ratio in 1962.

TEACHERS

	Percent Male	Percent Female
Under 35	35	45
35-49	36	29
50 and over	29	27

TEACHER-PUPIL RATIO

EMR	16.4
TMR	15.5
Deaf	7.1
Hard of Hearing	12.2
Visually Limited	9.1
Physically Handicapped	12.2
TBC	11.3
Special Health	18.0
Epileptics	13.0
Emotionally Disturbed	12.2
Language Disability	13.3

Teacher Organizations

The first organization of special educators was officially constituted in December, 1903, when only eight schools existed. The name could be translated as Association for Teachers and Physicians working in Educational Facilities for Retarded Children. Soon this organization became known as O and A, the initials of the Dutch words for teacher and physician. In 1963 this association celebrated its 60th anniversary. I am strongly tempted to talk elaborately about the colorful history of this association, but I will resist this temptation. Let me just tell you that the association has been very instrumental in every improvement in special education. Already in 1909 the periodical was published which has maintained its position as the leading journal in special education in the Netherlands. It has been my privilege to publish articles, book reviews, etc., dealing with special education in the USA, which, I hope, have been of some assistance to those in Holland who are interested in this country. In 1963 the organization changed its name to Association of Special Educators and Others, whose work is special educationally directed.

The change in name made it possible to retain the initials O and A. In the 60 years of its existence, O and A has published four special editions, in 1929, 1937, 1957, and 1963. Typically, none of these four books contain a great deal of praise for the publishing association, but all are devoted to problems in special education. Typically again, the last volume, titled "From Favor to Right," is devoted to a description of special education in every European country east or west of the Iron Curtain. When I told the Association that I would participate in this program, they mailed me one copy of each of these books, requesting that I present them to CEC as a token of respect and admiration for the beautiful work done on this side of the Atlantic. Because the first three books were out of print, the membership was asked to make copies available for this purpose, which was promptly done.

I might mention that a Catholic and a Protestant Christian organization for special educators were established later. The three organizations have created a specific committee which deals with matters of vital concern to all in a unified way.

The University

A few words may be said about the relationship between special education and the universities. As already stated, certain individual professors in education or psychology have influenced special educators mainly through participation in the training institutes as instructors. The University of Amsterdam was the first to appoint a professor in education and psychology of the exceptional child. Presently, there are four universities carrying on such programs. But the influence of the universities on the teachers is small, which is certainly to be deplored. Little research is going on, although I have the impression that some change in this is forthcoming.

Prognosis

I would like to conclude this short and very incomplete discussion with a look into the future. What course will special education take in the Netherlands? The development of the last ten years seems indicative. Let me first clarify one point. The Netherlands, with over 12 million people, is the most densely populated country in the world. Yet, in order to keep its economy going, the country imported over 200, 000 laborers from Italy, Spain, Greece, Turkey, Portugal, Morocco, and Algeria. The total number of unemployed is about 60, 000. It is immediately evident that these 60, 000 are cases beyond help. It is also clear that the mentally retarded, including a large number of trainable mentally retarded, are contributors to the national economy. This, I am sure, does not sit very well with those pessimistic prognosticators who advocate all sorts of extreme measures for fear of overpopulation, but that does not change the facts.

Already the Netherlands has three vocational technical schools for the retarded. Programs for emotionally disturbed persons, which treat the person when the behavior becomes unpredictable but maintain him in his socioeconomic environment, are highly successful. It seems logical that the trend toward complete social acceptance of exceptional persons will continue. If you ask me which variables account most for the success of the Dutch programs, I will not hesitate to reply: first, the special teacher; second: the special school. As you know, the Netherlands was one of the five countries studied by a task force of President Kennedy's Panel on Mental Retardation. This task force, which included Mr. Tudor from Illinois, Dr. Elizabeth Boggs from New Jersey, Mr. Brink from Michigan, Mr. Melcher from Wisconsin, and Dr. Power from West Virginia, made a number of specific recommendations following their study. Recommendation 2 gives a synopsis of the Dutch efforts in special education, and I would like to close this short presentation with the words of this recommendation:

> We recommend that the various programs for training of the retarded in the United States (in schools, workshops, institutions, etc.) be reexamined in terms of the expectancy of the capability of the retarded at all ages and levels of functioning. We believe that more can be achieved by severely disabled people than we have permitted ourselves to expect. This achievement can be realized when greater effort is directed towards identifying and eliciting specific individual skills and when the possibility of prolonged consistent progressive training in such skills is entertained.

PROGRAMS FOR EXCEPTIONAL CHILDREN IN HONG KONG

Grace Lee

It is a great pleasure to be able to share the mutual interest and experience concerning special education with you on this occasion. It is an honor for me to have been asked to present to you a résumé of the programs for exceptional children in Hong Kong.

About one-half the world away from Canada lies the island of Hong Kong, a dot when compared to the broad face of mainland China. The island comprises a land area of about 400 square miles, onto which is compressed a population exceeding 3,500,000 people, or a density of more than 8500 persons per square mile. It is of interest to point out that the 1961 census showed that, of the 3,100,000 inhabitants of the island, 41 percent were below the age of 15 years, and 16 percent were under the age of 5 years. This unusual imbalance, together with the rapid influx of refugees from the mainland and the fact that education is not free as we know it in the colony, indicates the considerable problems that have faced and still are facing the educational authorities.

In 1963, there were approximately 3250 primary and secondary schools of which 114 or 4.3 percent were government schools, the remainder being operated by private bodies, religious organizations, and voluntary bodies. Enrollment was approximately 730,000 pupils with only 12.3 percent of these enrolled in government schools. This dominance of privately run schools is even more evident in the limited facilities available for exceptional children.

Program for Handicapped Children

At present there are no government schools for the handicapped children, but a section of the Inspectorate has been established to advise and supervise the limited number of such established to advise and supervise the limited number of such schools run by voluntary bodies and to plan future development. The voluntary schools include six hospital schools, two schools for blind children, seven schools for deaf children, one school for the physically handicapped, and one school for children suffering from leprosy. The staff employed are very limited, but most are specialists in their field of work. However, accommodation and trained staff are quite inadequate to cope with the needs of handicapped children who require special facilities, and a brave attempt is being made by the small band of specialists in the Inspectorate to provide locally trained teachers capable of tackling the problem.

Programs for Mentally Deviated Children

The only aspect of special education which is presently under consideration for direct government operation is that concerning slow learners. Three classes are being established in the government primary schools to teach these children. The curriculum of these classes will be the same as for ordinary primary school, except that their speed of learning schedule is adapted and more freedom is allowed in classroom activities.

Although the people of the colony recognize the need for schools for the mentally retarded children, there are no government schools for them at the moment. There are, however, two privately run schools on the island. There are no schools, government or private, with educational programs for gifted children.

Programs for Vocational Training

There are two types of vocational training schools run by the government: (a) technical schools and (b) technical colleges. Children who are not eligible for promotion to secondary school will enter the technical schools which carry a five year course of study, with the primary aim being to train the students to be apprentices in the trades. However, successful candidates from technical school may continue their studies for three more years in a technical college which offers a wide range of technical subjects, such as structural, electrical, mechanical, and production engineering; building; surveying; commerce; navigation and textile industries; etc.

Those students who are unqualified to enter technical college due to low average or failure in final examinations have to seek any further education on their own, if it is desired.

Other Special Education—The Sea School

Due to the island's geographical location, shipping and the need for trained seamen are natural consequences. In this regard, a sea school was built on a hill overlooking the old fishing village of Stanley. It was started in 1951 for young boys under 15 years of age who belong to the water people. By water people is meant those families who live on boats in the harbors all of their lives, with the boats and junks aligned in orderly rows along streets of water.

The school operates on gifts from individuals and organizations with matching funds from the government, and tuition is HK $65 or Cdn. $13 a month. It offers a three year course of hard work mixed with sports, group projects, and spare time activities. The children study signalling with lights and flags, practice compass and bridge work, learn cargo handling, and so on. They also learn about the engine room and all types of shipboard equipment. Those who are to be stewards will learn about kitchen, cabin, dining room, and bar work. In addition, such trades as metalwork, welding, tailoring, carpentry, and plumbing are taught.

The one thing, however, that concerns the superintendent of the school more than the problems of finance, misbehavior, and other difficulties is the fact that the school must refuse admission to many applicants. Some 1500 to 2000 children apply for admission each year, but there is room for only 120.

Future Development of Special Education

Due to the limited supply of qualified teachers, the Hong Kong Education Department established a one year training program for such teachers in 1961. The teacher must be a graduate of a teachers' training college. Also, inspectors from the special education section have been sent abroad to receive overseas training.

There will be considerable expansion of schools for exceptional children. More schools for the blind, the deaf, and the physically handicapped will be built with the hope to accommodate everyone. An additional sea school may be possible in a year which will accommodate up to 700 students. Programs for mentally retarded children are under consideration.

As there are no Hong Kong standardized intelligence tests, research into methods of ascertainment is being done. The Inspectorate is aware of three major requirements that must be implemented at once: (a) the addition of a specialist advisor on the teaching and organizing of mentally deviated children, (b) research in all areas of special education, and (c) separate provisions for partially seeing children and earlier ascertainment of the deaf and the partially deaf.

Conclusions

As indicated, government special education programs are in the embryo stage. These few types of special education for exceptional children are the only programs provided for such children in Hong Kong at the present time. As can be seen, many normal children in the colony are unable to obtain an adequate education and, hence, the problems facing the establishment of special education programs are even greater.

SPECIAL EDUCATION IN SWEDEN

Karin Lundstrom

In 1962, the Swedish Parliament decided a new school system for our country, a comprehensive school of nine years' compulsory school attendance should be inaugurated. A new educational act came into force; and connected to the act was a system of regulations concerning all sectors of school work, organization, and administration. The fundamental principles of the new legislative system are as follows: every child living in Sweden has the human right of getting educated, and it is the child's duty to attend school during nine compulsory years. Local and regional authorities carry the responsibility of providing school education, and the National Board of Education—of which I am one of the Concillors—is responsible for planning, developing, and supervising the Swedish school system and for giving service to the field, e.g., to the regional boards, the local boards, and also individually to superintendents, teachers, and parents—not to say to the pupils! (In our top organized country, even the pupils have their own trade union, you see!)

Significant for our new school system is an educational slogan: "The pupil in the center of our efforts." The fundamental and first paragraph of our educational act confirms that the purpose of society's educating children and youth should be giving knowledge; training abilities; and, through cooperation with parents, developing pupils into happy, well adapted human beings and capable and responsible members of society. We feel this is a high and noble aim and it is essential for all of us working with education of the handicapped that this declaration of law should also include every handicapped child. To made this possible, society must provide extraordinary resources—personal, technical, and concerning buildings and physical environment—and extraordinary financial aid.

To perform it, we have worked out a system of school facilities, characterized by the terms specialundervisning, specialskola (for physically handicapped), and sarskola (for mentally retarded).

1. Within the term specialundervisning (special education), we include all facilities and efforts made inside the ordinary school system. The responsibility is carried by every single community and its local school board.

2. For our term sarskola, I can't find a good translation. It's a special school for mentally retarded, both trainable and educable pupils, and the Sarskola gives school and care facilities for them during 14-16 years. Regional boards carry the responsibility.

3. Specialskola (special school) means our state schools for blind children and deaf children.

Some statistics could give you an idea of the relationships between ordinary and special education: Grundskolan (comprehensive, compulsory school)—900,000 pupils; special school for mentally retarded—5,000 pupils; special school for visually handicapped and hearing impaired—blind, 250 pupils and deaf, 500 pupils.

Included in the above mentioned 900,000 pupils in our ordinary schools are the following special provisions for slightly handicapped children: children visiting special classes—40,000; children visiting ordinary class but getting extra lessions—30,000.

In our governmental budget, the expenditures for education are ranked on the third place: 33 percent to social welfare, 18 percent to defense, and about 17 percent to education. The average costs for education in Sweden during the last year (1964-65) were: one pupil (ordinary school), 3700 Scr = 750 dollars; and one pupil (special school) 14400 Scr = 3000 dollars.

The most significant trends in Swedish education of handicapped children are integration, adaptation, individualization, and flexibility. No decision or placing should be definite. All the circumstances of the child should be taken into consideration and carefully examined, and any suggestion for moving the child into another class or school should be adapted to the needs of the single child and his family.

First of all, we suppose that the new school system in Sweden is better fitted for the handicapped than the older school systems were. It has individualizing methods, a program of various activities, and it concentrates on developing the individual's own possibilities and powers. To make the sometimes really hard work in an ordinary class easier for a slightly or severely handicapped child, we have the above mentioned possibility of giving him extra lessons as a complement to the ordinary school work and a support of his self-confidence. A single child or a couple of children can have this supporting training two to five hours a week, naturally paid by the school authorities. If a teacher is giving this individual aid to single children or to very small groups of children during his whole weekly service time, we usually say that he is teaching in a school clinic. This is what is usually done to prevent difficulties in reading and writing or speech disorders.

If a child has graver difficulties, he might be placed in a special class; but we want to reduce the number of special classes and increase the clinic system. But we believe we need both sorts of measures.

For the most gravely handicapped, we think that the community should provide extraordinary resources, which means that we need a broader variety of possibilities for deaf, blind, mentally retarded, and gravely motor handicapped children.

Deaf and hard of hearing children can be taught in the following ways:

1. In a special school for hearing impaired, partly as day school pupils, partly as boarding school pupils. We have six schools for deaf children of compulsory school age. All of them have both boarders and day school pupils.
2. In special school classes, integrated into ordinary schools, but belonging to the special school system.
3. In classes for partially hearing, belonging to the ordinary school system.
4. In ordinary classes, with the above mentioned complementary training by specialists in hearing, lip reading, and speech development.

An expert commission has only last month presented a report recommending the following measures to widen the possibility for motor handicapped (crippled) to attend ordinary schools: adaption of school buildings and school planning so that they be "handicap friendly"; all doors without thresholds; broadened doors; toilets, resting rooms, and elevators big enough to take a wheelchair; at least one school building in every community adapted to the needs of handicapped pupils; free technical aids; daily transports paid by the school from home to school and back; personal assistance to the pupil at school work; and medical treatment and special therapy (e.g., speech therapy), available during the school day.

As I have mentioned before, the mentally retarded are the biggest group of handicapped pupils in our country. A special act of 1954, which we are just now amending through a new act of 1966, regulates the duty of the community to take the responsibility for education and care of mentally retarded children. Of course, these children have the right and duty to attend school like other children, and since 1954 there is a strong trend toward transferring mentally retarded children from residential schools into day schools.

All the above mentioned provisions for children during compulsory school age are also available for youth in high schools and vocational schools. A broad vocational guidance program is developed. Our work for educating the handicapped is not only a question of teaching and training them—it concerns as much the problem of creating among ordinary people and authorities a broad and positive interest in these children and their need of schooling. We are eager to widen people's understanding of children and adolescents who are different and to give the public information and proof that all these children have the same need of education and development as other children have.

I dare say that our public opinion just now—as in your country—is very much concerned with these questions and in a very positive way. It is no longer a question of either overprotecting them or trying to separate them from other children. And it is definitely not a question any longer of trying to make all provisions and measures for this group of children as inexpensive as possible.

The public debate concerning this field is vivid in many respects: What is special education? How shall it be given? Do we need special classes? Do we need boarding schools? What about the retarded child's capability? His social adaption? Segregation or integration? Attitude of the surroundings? How do we perform cooperation with parents and between experts? Which are the most important methodological questions? What are the scientific needs and research resources? How do we find the best way of attacking all these problems.

I think it's good that so many people are engaged in these questions. Where debate arises, there is life and interest. Our experience tells us that we have not always succeeded in our efforts to find the right procedure to help, but experience also tells us that we have succeeded. Our aim is to present a flexible system of possibilities, where parents and experts can choose between alternatives, and where every effort should be made to find out what is the best for this single child and his development.

I am glad to say that our Ministry of Education and our National Board of Education, which administer all educational programs in Sweden up to university level, have the best cooperation of the many associations of handicapped, the parents' associations, and other official institutions dealing with handicap problems. We have recently had a most distinguished and honored guest in Sweden, attending and opening an exhibition concerning facilities and rehabilitating centers for the mentally retarded; I mean, of course, Mrs. Joseph P. Kennedy.

In connection with her visit, I've studied "An Introduction to Mental Retardation" from the US Department of Health, Education and Welfare. The introductory words of this publication contain a challenge to all of us: " . . . our efforts in this field have just started." It's the duty of every one of us to give the best of our eagerness, willingness, and capacity to improve school facilities for the handicapped, making the world a little bit easier to live in both for the handicapped and for all of us.

EDUCATIONAL PROGRAMING FOR BLIND IN KENYA

Jason Mutugi

It was in 1942 when one of the Salvation Army missionaries in Kenya noticed a member of his congregation being guided by the hand because he was blind. After the service, the missionary went over to speak to him. Thomas Mwembe proved to be a rather interesting young man, full of intelligence. The missionary was so impressed with Thomas that he thought of doing something for him in the way of education. Fortunately, the missionary's wife had learned braille in England, and she was determined to teach Thomas both braille and English.

That very important morning saw the beginning of opening the doors of opportunity for the blind people in East Africa. It was not easy to establish programs for visually handicapped people in a society which had never hitherto heard of the capabilities of trained blind persons. Before then, nobody had ever thought of doing anything for those who had been deprived of that precious faculty of eyesight. Sightless people in East Africa had always been regarded as helpless beggars who could not be trained for anything constructive.

By 1944, the Salvation Army had a group of blind trainees who were accommodated in their Training College for African Missionaries in Nairobi. This group did so well in their work that the Salvation Army leaders were determined to persuade the Kenya government to give financial aid for the establishment of a proper training center at Thika. This center was to cater to both blinded soldiers and civilians. In 1946 the center was opened and here, for the first time in the history of Kenya, both academic subjects and trades were offered to blind people of all ages.

Today there are five primary schools for blind children and one trade training center for adults. In each of these schools, blind children receive the primary education equivalent to that of the schools for the sighted children in the country. Thika, the oldest school, has started a plan of enabling the brightest students, after graduating from their primary school, to receive secondary education in a nearby high school for normal children. These children study in the same classrooms along with the sighted students, using their braille equipment for writing. The plan now is in its third year, and it seems to be working very successfully.

Some of the boys, after graduating from Thika Primary School, are trained to become telephone switchboard operators. There are approximately 50 of these telephonists employed either by the government or by private firms in the country. A good number of these graduates have been given employment on light engineering by various factories, working side by side on an equal basis with the sighted workers, each drawing the same wages. Normally these young men are trained on the job.

The blind adults who go to the Trade Training Center at Machakos receive instruction in leather work—making articles such as handbags and belts—and a number of other traditional African trades. On leaving the center, the trainees are expected to go back home and set up their own businesses. But unfortunately, these men often do not find markets for their manufactured goods because of the bitter competition on such articles in the country. Occasionally some of them are forced to close down their little workshops.

To solve this problem, the Kenya Society for the Blind, a small private agency in the country, has set up two sheltered workshops where some of these people get employment after graduating from Machakos Center. The Society finds markets for the crafts these employees make; but the problem is not fully solved, because these two small workshops cannot accommodate all the students who are completing their training every year at Machakos.

A few years ago, training in farming was introduced to blind adults. The idea was to resettle blind people in rural areas where they would become small land holding farmers like most other Africans, but the whole program collapsed. The main causes of the failure were poor organization and lack of land, in addition to other sociological factors. But I am sure that farming can be very successful among blind people if it is well organized.

The Salvation Army School for the Blind at Thika has a section for blind babies. This nursery caters to babies between the ages of one and five years, after which they are transferred to the school proper. About two years ago the same center opened a unit for teenage girls. Here they received domestic training. But I regret to say that so far none of the girls have been placed on any employment, due to certain problems involved.

These programs may sound very promising in solving the problems of blindness, but they are only a beginning and we have yet a long way to go. It is estimated that the population of blind people in Kenya is in the region of 65,000 to 75,000, and about 20,000 are under 20 years of age. Now this is a very high number when one considers the size of the country. Kenya is a small country, about the size of Ontario, with a population of 9,000,000 people.

The five schools I have mentioned can accommodate only 400 pupils at a time, which means that most of the children have no means of receiving education or training of any kind. The result is that there are thousands of blind people who have no way of earning their living independently. They rely on their relatives, friends, or begging. In Kenya the government does not give any financial aid to blind persons, as is the case in the affluent societies. This is because the government itself does not have enough funds, and what it has is spent on building the country in general.

As has been demonstrated by a few persons, if blind people are given opportunities for education and training, they can become independent and useful citizens, contributing to the nation and becoming tax payers instead of being tax consumers. It should be remembered that blindness does not affect mentality; after all, the person is still the same, and the only thing lacking is the eyesight.

A cheaper way of giving education to many blind children would be to educate them locally along with sighted children. In going to school at home, they would grow up as part of the community, and thus employment would be available locally. It is ill advised to send them to sheltered institutions where they would be isolated from the rest of the public, since after graduation they are expected to go out and work among the general public.

I know that questions are now arising in your hearts as to what causes all this blindness and what is being done to prevent it. The main cause is a disease known as trachoma—a disease found in most tropical countries. Thousands have been victims of this disease, particularly small children. There are also other causes, such as measles, malnutrition, and accidents.

The Kenya Society for the Blind is doing what it can to stop the spread of trachoma. They have a mobile clinic which is a vehicle fitted with medical necessities and having trained personnel. It moves from school to school, examining all children and giving them treatment when necessary, referring serious cases to the main hospital in Nairobi. The problem here is that, after such treatments and recovery, there is no guarantee that the trachoma will not recur, for the flies are on the move all the time, spreading it from child to child.

The problem of blindness is further complicated by the fact that it has something to do with the social and economic factors of Kenya. Poor hygiene and lack of nourishment play a major role here. The only solution in stamping out the spread of trachoma viruses and other diseases which contribute to the afflictions of mankind in the young nations of Africa and Asia would be to improve human resources first and then economic resources. No country can improve in any area without first improving the human resources through education and training. If the problem of education and training is solved, then others (such as economic, social and health problems) will solve themselves eventually.

As is very well known, the big problem facing African and Asian countries today is the question of industrialization; but if the human resources are improved, this, too, would solve itself.

Now what can the affluent societies do to assist these countries in solving some of their problems? There are a number of things I feel can be done. For instance, conduct a scientific research of trachoma viruses and stamp out the flies—yes, flies—those insects that are even worse than lions! Also, personnel experts are needed to train local teachers to cope with the problems of exceptional children.

GENERAL

FINDINGS FROM THE RESEARCHES OF THE INTERPROFESSIONAL RESEARCH COMMISSION ON PUPIL PERSONNEL SERVICES

Gordon P. Liddle

Recognizing the need for greater cooperation and coordination within pupil services and the need to find more efficient methods of operating, personnel from the national professional organizations of pupil personnel workers and school administrators formed the Interprofessional Research Commission on Pupil Personnel Services (IRCOPPS). The Commission is presently composed of representatives of the following organizations: American Academy of Pediatrics, American Association of School Administrators, American Medical Association, American Nurses Association, American Personnel and Guidance Association, American Psychiatric Association, American Psychological Association, American School Health Association, American Speech and Hearing Association, Association for Supervision and Curriculum Development, The Council for Exceptional Children, Department of Elementary School Principals, International Association of Pupil Personnel Workers, National Association of Secondary School Principals, National Association of Social Workers, and National Education Association.

Both search for innovation and the need to evaluate present programs and innovations played a role in the formation of IRCOPPS. Beginning in the fall of 1963 and assisted by a grant from the National Institute of Mental Health, four regional centers were established to undertake major research and demonstration projects. These centers are now operating at the Universities of Maryland. Michigan, and Texas, and UCLA. The central staff is also located at Maryland.

The Commission is attempting to describe and evaluate existing programs in communities of various sizes and types, determine the relative effectiveness of programs of primary and secondary prevention of learning difficulties, experiment with new methods of training pupil personnel workers, find more efficient uses for the worker's time, and demonstrate ways of improving the relationship between pupil services and the instructional program.

At this point it might be well to differentiate between pupil personnel services and special education as we use these terms. Special education includes those services which are primarily instructional in nature—programs such as classes for the mentally retarded, the deaf, the emotionally disturbed, or remedial reading instruction. Pupil services are those services provided which are auxiliary to teachers. They are primarily aimed at alleviating the learning difficulties of children who can remain in the regular classroom. These services are provided by school psychologists, counselors, social workers, attendance workers, nurses, physicians, psychiatrists, and speech and hearing specialists.

The effort to give each child a meaningful educational environment has resulted in dramatic growth in pupil services, as well as special education. In an attempt to assist the schools with the learning and emotional problems of students, the number of school psychologists employed has increased by approximately 500 percent in the last decade. In the spring of 1958, there were about 12,000 full time equivalent counselors in our secondary schools. In the fall of 1962, there were more than 27,000. Elementary school guidance is growing even more dramatically during the 1960's.

Paralleling this growth is the growth of professionalization of pupil services. The National Defense Education Act has supported training for more than 15,000 counselors. While these services are still plagued with partial competencies, today the vast majority of counselors and other pupil personnel workers are full time professionals certified by the state to perform particular functions, and the growth of professional organizations has increased markedly.

Pupil services have had their share of growing pains. A number of the groups, particularly the psychologists, social workers, nurses, and counselors, have become more psychologically oriented in the past decade and have come to have overlapping skills and responsibilities which have sometimes resulted in duplication of effort. Problems of this sort have led hundreds of school systems to coordinate pupil services under a director or coordinator. There were only 12 such directors in New York State in 1953; today there are 189. Similar growth rates have occurred in other states in the northeast and in the far west.

The central staff of IRCOPPS recently completed a study of 234 directors in all parts of the nation, with a return rate of 92 percent. About 75 percent of the time of these directors was devoted to supervising and administering pupil services. The remaining time was approximately evenly divided between responsibilities in the area of special education and other duties. The directors were almost always responsible for psychiatrists, psychologists, social workers, counselors, attendance workers, and speech and hearing specialists if these services were present in the system. About two-thirds of the time they were responsible for nurses and physicians as well. The systems employing directors serve relatively affluent communities and are larger and better staffed than the average school system. The fact that three-fifths of the directors earn more than $12,000 a year is one indication of this.

Three out of every ten directors have an earned doctorate and another two are working on this degree; only one in 25 lacks a master's degree. In their postmaster's education, about a third have specialized in guidance; another third, in psychology; and smaller numbers, in school administration, special education, exceptional children, or child development. School psychology or guidance seems to be the usual path to the directorship.

In addition to belonging to the National Education Association, about half of the directors belong to the American Personnel and Guidance Association and almost one-fourth belong to The Council for Exceptional Children; one in six belongs to the American Psychological Association. It would seem, therefore, that APGA and CEC are now the two most common meeting places at which directors can discuss their mutual concerns. Next month in New York State, a meeting is being held, looking toward formation of a national organization of directors of pupil services.

The directors predict that during the next five years many additional staff members will be hired to strengthen existing services. They also expect to add new programs, particularly elementary school counseling, and to incorporate health services into pupil services, if they are not already under the pupil services umbrella. Directors predict that school based elementary counselors will become common. Many also expect their workers to render more indirect services through consultation, and expect subprofessional aides and technological developments to remove much of the clerical burden from their present staff members. Despite a very high level of education and experience and a basically optimistic, expansionist viewpoint, the directors feel the need for further training in fields such as psychology, learning, special education, social work, and research and also feel the need for an opportunity to learn more from one another.

Research on Child Behavior Consultants at the University of Texas

In 14 demonstration elementary schools in Austin and San Antonio, Texas, the University of Texas regional center is engaged in a long range study of the effects of mental health consultation services to teachers, nurses, speech correctionists, and principals in elementary schools. The project is attempting to understand what patterns of consultation procedures tend to produce what amounts and patterns of changes in particular characteristics of the consultees. They are studying the interaction between the consultants and the adult consultees and also changes taking place in students. The mental health consultants, called child behavior consultants or CBC's, do not provide any direct services to children. Since the teacher really has the responsibility for the children's learning, the consultant attempts to help the teacher become a more skillful observer of students and their interaction with other students and the teacher. Consultant sessions, each typically conducted with an individual teacher about a particular child, focus on the behavior problems or learning difficulties of the children as they are perceived by the consultee.

Most of the problems have centered around managing, helping, or reaching children in the teachers' classes. The expectation is that in time teachers will learn to handle successfully more of the transitory and minor problems of their students. The worker gets out of the business of removing difficult students from the class in an effort to make them more teachable and gets into the business of helping teachers analyze their role in assisting students. Together the teacher and worker decide what additional information is needed to arrive at a tentative diagnosis and treatment plan. After deciding how to get the needed information and collecting the data, they arrive at a plan. Then through time the worker helps the teacher analyze the effects of the treatment and make needed modifications.

This consultant does not eliminate the need for psychological testing, home visits, and other direct services, but it does reduce the collection of unnecessary data, and the teacher remains the captain of the team concerned with the individual pupil. Through consultation the teacher may achieve a clearer view of his own value system in relationships with a specific child or group of children.

On a consultation report form, the consultant reports on the nature of the problem, kinds of messages he gives to the consultee, his estimates of the teacher's involvement, defensive hostility, receptiveness to the CBC's messages, the consultee's concern, the client's welfare, etc.

Results are now beginning to come in from this study. For example, the most frequently identified themes are found in the following areas: the teachers are asking for the support of the consultant in carrying out a decision already arrived at, such as transfer of a child; the teachers are concerned about how to communicate with parents who seemingly are disinterested in their children's progress; they are concerned about children who seem to have the ability but are not motivated to achieve, with acting out or disruptive children who fight with others, with principals, janitors, or other teachers who threaten the teacher's role, and with reaching withdrawn or socially isolated children; or the teacher wants to understand what certain child behavior means.

The CBC's often give messages such as: most behavior of children can be understood, but we need more information; continue what you're doing, you're getting results; don't be alarmed if the child regresses occasionally, this is to be expected; the nurse or the speech therapist can help us with this problem; we have to accept the parents' limitations; or some children respond better to one type of teacher control than to another.

Generally teachers have felt that the consultant has been most helpful to them in identifying the problems of children, understanding these problems, confirming the teacher's judgment, and giving them additional information or knowledge relating to human behavior and emotions.

There are teachers who think that the consultant would be more helpful if he would see the children directly, either in individual conferences or by classroom observation; but generally the majority of the teachers who have been using the consultant have found the role a useful one in suggesting ways of obtaining more information, making suggestions for guiding the teacher's observation, and coming up with a variety of solutions for the teacher to try. Extensive findings on teachers who do and don't use the consultants, the types of problems they bring to the consultants, and the effects of this type of assistance on teachers and pupils will be available in the next year or two from Dr. John Pierce-Jones and his colleagues at the University of Texas.

The other IRCOPPS centers are also engaged in research and action research projects dealing with significant issues in pupil services; but since most of their major studies were originally conceived as long term projects, most of the results are not yet in. The University of Maryland center, for example, is engaged in testing in the elementary school a role advocated by the Gibbons Bill, HR 11322, now before the House. The Gibbons Bill proposes training tens of thousands of child behavior specialists to work with children from the preschool years through the primary grades and with their parents and teachers. The plan is to give two years of graduate training in consultant skills, child development, psychology, cultural anthropology, and remedial techniques in teaching to persons with bachelor's degrees. This training would emphasize internship experiences looking toward operating pupil services largely on a preventative basis. The child behavior specialists would be generalists.

Many respected leaders in pupil services indicate that with larger and more varied school populations and with continued expansion of knowledge in the behavioral sciences, increased specialization in pupil services is both desirable and necessary.

Others disagree. They think that we need someone who knows the strengths and weaknesses of the staff of the school and the resources available in the community. The University of Maryland staff has taken the view that they would like to find out whether or not a generalist can be trained, largely on the job, to perform all of the present functions of the elementary school counselor plus many of the present functions of psychologists, social workers, and nurses who serve elementary schools. They are setting out to train such workers, to learn to do whatever needs to be done in pupil services in the single school they serve. When the child development consultant, as they call him, needs the assistance of the system wide school psychologist, social worker, or health workers, he can call upon them; but the expectation is that a single worker can handle most of the school's needs for pupil services. Richard Byrne and the Maryland staff are comparing the way this type of worker functions in a school with the way in which a conventionally trained counselor or social worker operates in similar control schools. The Rochester, New York, schools are engaged in a similar experiment.

The University of Michigan center has completed and reported on a study of school psychologists and diagnosticians in Michigan and has completed a study of visiting teachers in that state. They have also completed and will shortly publish a study of certification requirements and training patterns in the Midwest in these fields, plus counseling, school pediatrics, nursing, and speech. These studies are too large to report in my limited time.

Since the pupil service disciplines often have communication problems among themselves, James Dunn and the Michigan center are experimenting with the interdisciplinary training of pupil personnel workers. Counselors, psychologists, social workers, and school nurses are taking a core of courses together early in their training. These courses are taught by the most appropriate person available on campus to teach a particular course. Then, late in the student's graduate education, each of the specialists join an interdisciplinary team for his internship experience. They also learn to function together on an interdisciplinary research project. It is hoped that persons trained in this manner will do a better job of communicating and understanding and utilizing the skills of the other members of the pupil personnel team.

At the University of California at Los Angeles, the project staff, under the direction of Merville Shaw, is working with a half dozen California and New Mexico school systems. They are training pupil personnel workers from the several disciplines to work with groups of parents and groups of teachers as these groups focus their attention on the learning and emotional problems of children. In time we will know what types of parents and teachers utilized this type of experience, what changes occurred in them, and how these affected their children. At present we know that the vast majority of the teachers in the experimental schools have taken advantage of this opportunity and are coming on their own time before or after school to participate in groups led by pupil personnel workers who have been trained to work with teachers and parents in groups. Perhaps this will prove to be an economical use of the worker's time. Garth Sorenson at UCLA has been experimenting with using teaching machines to teach high school students to interpret their own test scores. This may enable students and parents to get greater benefit from the expanding testing programs.

ROLE PERCEPTIONS OF ADMINISTRATORS, PUPIL PERSONNEL WORKERS, AND TEACHERS

John K. Fisher

During the 1964-65 school year, the central staff of the Interprofessional Research Commission on Pupil Personnel Services conducted a nationwide study of the role perceptions of principals, teachers, and members of each pupil personnel service discipline. In addition, information was gathered on pupil services programs, community referral agencies, the referral process for pupil personnel services, and the manner in which the above vary with geographic region, income level, and size of school district. Also, certain demographic data were obtained about each participant.

This study arose from the need to gather on a nationwide sampling basis information on the roles of pupil services specialists, in order to make their functioning more effective. There have been a number of studies of the present and ideal role of a given pupil services worker in a particular community, or in a section of the nation. But there have been few interprofessional studies which have examined the roles of all the pupil personnel specialists at one time and their method of working in a given situation.

There is a need for research on the roles of various pupil services workers in the several disciplines. It is important to determine how the counselor, social worker, speech therapist, audiologist, nurse, school physician, attendance coordinator, and psychologist perceived himself and others operating in the school. We also need to determine how the principal and teacher perceive the role of each pupil services discipline. Now more than ever before, it is necessary for people in each of the pupil services disciplines to know how other members in their field perceive their role in the schools. It is important for attendance coordinators to know how they are perceived by principals, teachers, nurses, and members of each of the pupil services disciplines. Not only is it of value for these specialists to know how their role is perceived at present, but it is important to know how others on the staff would like to see them function. It appears that a lone social worker might perceive different functions for himself when other pupil services specialists are added to the staff. It would be of value to know how principals would utilize pupil services workers if they had at their disposal the full range of pupil services.

Thus, the central staff study of role perceptions that teachers, principals, and pupil services workers hold for pupil services was conceived. The basic instrument (The Situation Sheet), containing 27 functions, was adapted from an instrument designed by Wiens in a 1941 study of pupil services functions in large cities. All persons participating in the study responded to this. In addition, all principals, teachers, and pupil services personnel were asked to fill our instruments that were designed to elicit information concerning pupil services programs, community referral agencies, the referral process for pupil services, the perceived importance of previous teaching experience in pupil services, education and organizational affiliations of respondents, and socioeconomic status of the community served by the school.

Most surveys attempt to sample from the general population of superintendents, principals, or teachers. This study was unique in that, for a given school, the principal, two teachers, and all pupil personnel workers giving service to that school were included. All of the 21 very large systems (100, 000 pupils and over) were included in the study. Using random sampling techniques, one-half of the large systems (25, 000 to 100, 000 pupils) were included (120 districts). Also selected were 100 systems with from 3, 000 to 25, 000 pupils (medium sized districts) and 100 systems with from 300 to 3, 000 pupils (small districts). Systems having fewer than 300 pupils were excluded from the study, since it was felt that these districts were too small to have significant pupil personnel services. From each very large, large, and medium sized system, using a state education director and a table of random numbers, two elementary and two secondary schools were chosen for inclusion in the study. In small systems, two schools were selected and, wherever possible, an elementary and a secondary school were chosen.

After the stratified random sample of school districts had been drawn, all of the 281 superintendents of systems so chosen were contacted with a request for participation of from two to four schools in their districts. Approximately 72 percent of the superintendents granted permission for the study. Once this was obtained, principals, pupil services personnel serving these schools, and two teachers of grades or subjects selected by the central staff were sent questionnaires. This report will cover briefly the survey findings with regard to principals, pupil services workers, and teachers.

Principals

The majority of principals at both elementary and secondary levels indicated that pupil services specialists work together on an informal basis. Teaching experience was thought to be of considerable value for all pupil services personnel, with the exception of nurses and physicians. In general, specialists' availability was greater in areas that had the highest percentage of such persons.

At the elementary level, the administrator and teacher were perceived to be the most highly involved persons in the situations. At the secondary level, the counselor and administrator were seen as being most highly involved. In the ideal role at both levels, the counselors and administrators would become the most highly involved persons. As the change was made from the present to the ideal role at both levels, a large increase in utilization was noted for psychologists, social workers, and directors, as well as much less involvement of teachers and administrators.

Members of DESP and NASSP were more often in urban or suburban schools that had more pupil services, higher percentages of white pupils, and were more likely to be working in communities that had more referral facilities and higher median family incomes. Members of these groups felt that pupil services in their schools were more easily available. Members and non members were quite similar in their response to the Situation Sheet.

In terms of geographic differences, principals in the southeast had fewer pupil services, fewer white pupils, and lower median family incomes in the community. On the other hand, schools in the northeast had more pupil services, more white pupils, and higher family incomes in the school district.

The larger districts had lower percentages of white pupils and more pupil personnel services; and they were more frequently located in urban or suburban areas. The administrative staff was involved more often in the referral process in the small districts. This is probably due to the fact that they have fewer services, and these are less well developed. In such districts, specialists meet less frequently and more often work independently of one another.

In terms of median family income, the higher the level, the higher the percentage of white students in the school, the greater the percentage of schools in urban or suburban areas, and the more highly developed pupil services become. Regular meetings of specialists also become more common. At the secondary level, as income increases, so does the percentage of principals with prior pupil services experience.

Since so few elementary principals were found with pupil services experience, an analysis at this level was not performed. At the secondary level, principals with this experience were found more often working in urban or suburban areas where median family incomes were higher, more pupil services were present, and there were more community referral agencies readily available.

The present and ideal responses of principals who had a majority of the services were highly congruent. This was true of both elementary and secondary principals. This may mean that they are relatively well satisfied with the way pupil services are operating in their schools.

Pupil Personnel Services Workers

This section covers briefly a summary of the responses made by 215 attendance coordinators, 206 psychologists, 73 physicians, 359 nurses, 248 speech and/or hearing specialists, 147 social workers or visiting teachers, and 662 counselors. Over 60 percent of the persons in each discipline, except for physicians, indicated that the usual way that pupil services specialist worked together was on an informal basis, when they found they had some cases in common. Approximately 44 percent of the physicians said this procedure was followed, but 30 percent were not aware of what was done.

When the teacher has a child who is in need of the services of someone in pupil personnel, referral to the administration was thought to be the most common procedure. However, over 52 percent of the speech and/or hearing specialists and counselors said that referral was directly to a specialist. There appear to be distinct differences in the referral process between elementary and secondary levels. Those working at the elementary level, regardless of discipline, indicated a greater percentage of the time that the child was referred to the administration. On the other hand, at the secondary level there was more direct referral to a pupil services specialist who handles all referrals from teachers. This may be due to the presence of more school based specialists at the secondary level which would allow less involvement of the administration in the referral process.

Counselors, nurses, and attendance coordinators were seen to be the most easily available people in pupil services, and physicians and psychologists were thought to be least available. Much of this may be due to the fact that the former are more often responsible for a single school or a small number of schools and thus can be reached more readily when needed.

Physicians, psychologists, and counselors have completed more years of formal schools than have members of other pupil services disciplines. Teaching experience was thought to be important for all members of pupil services disciplines except physicians and nurses.

Responses to the Situation Sheet concerning the present role also differed by school level. There was much greater involvement of the administrator indicated in the elementary school. In the secondary schools, the counselor was the person chosen most often for the situations. This again may be due to the fact that because there are fewer school based specialists at the elementary level, the administrator is by necessity more involved. The counselors are relatively well established at the secondary level and thus are more involved in these kinds of situations. There was a tendency for specialists in each group to choose themselves more frequently for involvement in the situations than they were chosen by others.

Teachers

The referral process for pupil services was perceived quite differently by teachers at elementary and secondary levels. The majority of elementary teachers (68 percent) said that a child in need of help from pupil personnel was referred to the administration. More secondary teachers indicated that children were referred to a specialist directly than by any other procedure.

The elementary and secondary teachers responded differently to the present role on the Situation Sheet. Secondary teachers indicated that the counselor is the most highly involved person in the situations. On the elementary level the administrator, teacher and psychologist are seen as being more involved than they are at the secondary level. When the full range of ideal pupil services is available, the responses of teachers at both levels became much more alike. There was an increase in involvement of the counselor at the elementary level and a decrease at the secondary level for this person. Utilization of teachers, administrators, and nurses was decreased at both levels, and there was an increase in the involvement of psychologists, social workers, and directors of pupil personnel services.

EDUCATION—SPECIAL OR NOT!

Z. S. Phimister

One hundred and fifty-three years ago next Wednesday, that is to say April 27, 1813, a number of Americans came to Toronto in numbers about equal to this group which we welcome here this morning. However, the Americans in 1813 arrived in sailing ships, and, to the consternation of this small town of few score of inhabitants, they had other than peaceful intentions. For our two countries were at war in 1813. In the ensuing unpleasantness, the fort that was supposed to protect York was blown up; the legislative buildings were burned; and the mace, the symbol of authority of the legislature, and the ceremonial wig of the speaker were carried off. The loss of the speaker's wig gave rise to the rumor that the Americans were scalping the natives, a rumor which, as Mark Twain commented when his death was reported to him, was somewhat exaggerated. We never got the wig back, but the mace was returned by President Roosevelt in 1934.

This morning's invasion of Americans we welcome. Not only do you have a very warm spot in our hearts because you are fellow teachers in special fields of education where we share your concern for our common professional duties, but we welcome you because you are Americans, whom we admire. We admire Americans because of the generous help you consistently give to the rest of the world and because of the leadership role which you have had to assume in recent decades. We extend a very warm welcome to you as representatives of your country and as fellow teachers in special education.

I should like to be able to pay the tribute to members of The Council for Exceptional Children which you deserve. While I do not know very much about the technical aspects of the vast knowledge which you bring to bear on the problems which face you in the classroom, I know enough to have the greatest admiration for the skill, the competency, the persistence, and the hope that you bring to your work. Truly, yours must be a rewarding experience, for you seem sometimes to work miracles. The gratitude of children and their parents and loved ones must be an exceedingly great satisfaction for you when you know that your patience and your insights helped bring about the miracle of change for the better. Therefore, let me say to people who often do not receive the recognition that they so much deserve that your work is appreciated and understood. I speak for thousands of parents when I say "thank you" to each teacher working in special education.

You, perhaps more than any group of teachers, look upon each individual as unique; and as you bring your skills to bear on the pupils' needs, you constantly look for the motivation and the set of values which will cause that child to develop desirably. More and more we are coming to see in education—whether special or not—that we must concern ourselves with ends as well as with means, with meanings as well as with methods, with values which give life order and purpose. We are concerned to know what life is all about, perhaps more so in today's dangerous world than we have been in the past. We are concerned with recognizing the worth of the individual and to have him recognize his own worth. We have shared a great heritage in these new lands, and we must prove that we are worthy of that heritage, each in his own way, each with his own talents.

People in special education, more than in any other branch of education, know that each individual must be looked upon as unique and respected for what he is. We build on what we find. We try not to destroy but to conserve and develop the talents the child may have. We do not make the mistake the animals in the forest made when they tried to establish a school to meet the reformer demands for rigorous schooling for the forest folk.

> Fable for School People
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> Once upon a time, the animals decided they must do something heroic to meet the problems of "A New World". So they elected a school board consisting of a bear, a badger and a beaver. The school board hired a porcupine as a teacher. The curriculum consisted of running, climbing, swimming, and flying. To make it easier to administer the curriculum, all the animals took all the subjects.
>
> The duck was excellent in swimming, in fact better than his instructor; but he made only passing grades in flying and was

> very poor in running. Since he was slow in running, he had to stay after school and also drop swimming in order to practice running. This was kept up until his web feet were badly worn and he was only average in swimming.
>
> The squirrel was excellent in climbing until he developed frustration in the flying class, where his teacher made him start from the ground up instead of the treetop down. He also developed "Charley horse" from over-exertion and then got C in climbing and D in running.
>
> The eagle was a problem child and was disciplined severely. In the climbing class he beat all the others to the treetop, but insisted on using his own way to get there.
>
> The rabbit started at the top of the class in running, but had a nervous breakdown because of so much extra work in swimming.
>
> At the end of the year an abnormal eel that could swim exceedingly well, and also run, climb, and fly a little, had the highest average and was valedictorian.
>
> The prairie dogs stayed out of school and fought the tax levy because the administration would not add digging and burrowing to the curriculum. They apprenticed their child to a badger and later joined the groundhogs to start a successful private school. And so the school was closed, much to the relief of all the forest people.

Moreover, special class teachers know that it is difficult to judge which are the rabbits and which are the tortoises in the school. Sometimes (not always), the most likely children turn into outstanding adults. Let me illustrate by referring to Winston Churchill's description of the examination he wrote to enter the English public school, Harrow.

> I wrote my name at the top of the page. I wrote down the number of the question "1". After much reflection I put a bracket around it.
> But thereafter I could not think of anything connected with it that was either relevant or true. Incidentally, there arrived from from nowhere in particular a blot and several smudges. I gazed for two whole hours at this sad spectacle and then merciful ushers collected my piece of foolscap with all the others and carried it up to the Headmaster's table. It was from these slender indications of scholarship that Mr. Welldon drew the conclusion that I was worthy to pass into Harrow.

But different as each child is and unpredictable as he is, he, along with the rest of us, must recognize that if we are to make democracy work we have a part to play in society and it is up to us to determine whether that part will add something desirable to to the world or subtract something from things as they are.

And if we consider that role as teachers is mainly an economic one in harmony with today's emphasis on the skills and the ability to strengthen the economy by becoming a skilled worker without reference to the question "What for?", we may arrive at that state described by Professor J. K. Galbraith when he points out that when the landscape is covered with roads and the roads are finally all covered with cars and we are sitting in our cars in the last great traffic jam slowly dying of one another's carbon monoxide, it will profit us little to hear on the car radio that the GNP has risen another two percent.

Is it time to ask what may be done to orient the schooling process we are putting our children through in order to give them, and perhaps us, some perspective, some sense of values, something to guide us in our day to day endeavors which will make life more meaningful? Perhaps we can be helped to understand the two extremes of youth today which seem to me to rebel against the world as they see it. I refer, on the one hand, to the young people who see no need to do any work or to behave themselves in any accepted pattern, but instead lose themselves and their fellows in a beatnik jungle. On the other hand, I refer to the practical young people who go out into the world, often at great expense to their health, to work in foreign lands in the Peace Corps or in CUSO in this country, or other similar organizations in other countries. Both groups, it seems to me, are reacting to things as they see them in today's world. One group considers any form of action hopeless and withdraws from the world and its affairs. The other group tries desperately to improve things. Perhaps the school has some special responsibility here. It would seem we have not helped these young people to understand the forces at play in the world. We have not harnessed their idealism in a way that might have turned it to good advantage for all society.

All of us, pupils and teachers, need to recognize that all men are part of the great tapestry of life and that all are potential contributors who may strengthen the fabric of society. We share the joys and sorrows, the achievements and failures of the great spirits in the religions of the world and in the history and literature in our courses of study, and even of those whose spirits are revealed in the day's news with its emphasis upon conflict and disaster.

Young people need to be stirred and influenced by the lives of the great social reformers—the inventors, the explorers, the people who managed to do great things. They need to respect ideas and to understand the power of an idea, particularly when its time has come. Let me illustrate the point with a quotation.

> Thoreau—Gandhi
>
> Once there was a school teacher—a not very successful school teacher—who had strong opinions about a great many things. The day came when he decided that he could not support a government which in turn supported slavery, and he refused to pay his taxes, and went to jail. It didn't really accomplish anything, apparently. A friend of his who understood the man's quixotic nature went down and paid the tax, and most of the people in the small town where he lived laughed about it. They thought the fellow was a kind of a nut anyway. He couldn't seem to make a good living —went off and lived by himself in the woods for a couple of years. The children liked him because he was always ready to drop whatever he was doing for a ramble in the woods, but everybody agreed he was a peculiar duck who

> would never amount to much. That was in the town where he lived. Outside that one little town, nobody knew he existed. What difference could it possibly make whether or not this fellow stood up for his convictions? He simply became a laughing stock in his own home town, and nobody else knew about it anyway.
> Except that as a result of his beliefs and his experiences he wrote an essay titled "The Necessity for Civil Disobedience". And almost a hundred years later when this stubborn, quixotic, small town school teacher should have been forgotten, along with all the people in the town who laughed at him, and all those who liked him—almost a hundred years later, on the other side of the world, a little wizened man kept beside his bed a thin volume, "The Necessity for Civil Disobedience", and from it he developed the idea of passive resistance with which he freed India.

And from Gandhi's experience, Martin Luther King and others have forged the weapons with which to carry on the fight for Negro rights in the USA. Thoreau's ideas had their greatest impact long after he was in his grave.

Wilberforce is an example of a man who brought an idea to fruition in his lifetime. Slavery had existed in the world since recorded time. One young Englishman left his life of gaiety in English society and devoted himself to wiping out slavery. It took 20 years to get a bill passed in the Commons outlawing the carrying of slaves in British ships; it took another 25 years to get a bill passed to abolish all slavery under British rule. Two days after the bill was finally passed, on the 25th day of July, 1833, Wilberforce died; but 800, 000 slaves had become free men.

Young people need to know the great spirits of the human race and the reasons which moved them. But they also need to know that in this imperfect world many things have to be taken into consideration apart from the merits of any case. Oftentimes we introduce to children the great ideals and the great reformers which brought about the changes, and the child may see the picture as all black and white or even in living color. But we are unfair to him unless we inoculate him against the many disastrous elements which play a part in human existence which no chart can forecast. We must have him recognize the misinformation that must be constantly analyzed. He must be prepared for opposition from forces which are wholly selfish, if he is to prepare himself in the struggle to add something to the heritage which was bequeathed to him.

Consider the misinformation and the difficulty of getting at the facts which we face even in a world of unparalleled means of communication, even in a world of modern school textbooks. The following example, copied from a textbook in use in the elementary schools in Birmingham in 1931, shows how bad even a textbook may be.

> The second city of the Dominion in point of population and commercial importance is Toronto. It stands off the main line track. It is in the centre of a great lumber district, and as one passes through this part of the country small clearings are seen at frequent intervals. During the summer these are practically deserted, but in the winter they are teeming with life. Each clearing has its own camp, a large log cabin where the men sleep and eat. From the clearing, roads lead off through the forest in various directions, and along any of them a sleigh drawn by two, four, or even six horses can sometimes be seen, laden with immense logs.

> During the war of 1812 and 1813, Toronto was twice occupied by the Americans, but on neither occasion could they hold it.

Chance plays a big part in human affairs; life in many respects is a gamble. History is full of examples of great matters being determined by small events, and young people may well speculate upon what might have happened regarding the following except for some minor circumstance: (a) Cook and the discovery of Australia; (b) Carver, a Negro child kidnapped and returned to a good foster father through the efforts of one man; (c) Hitler and July 20, 1944.

Children should be made aware of the need for change and the fact that change is nearly always resisted:

> The man who first opened an umbrella in Philadelphia was arrested; who first drove a sawmill by water power in England was mobbed; and the inventors of stoves, railroads and telegraph were "crazy"; George III said the lightning rod was impious; Jennet, who invented vaccination, was scorned by the medical profession, and Harvey, for discovering and demonstrating the circulation of the blood was called "crack-brained", and his doctrine branded as "new-fangled" and "dangerous". Lister, who founded antiseptic surgery, was blackballed by the London Surgical Society. Napier fought the introduction of steam power in the British Navy. Walter Scott called gaslight a pestilential innovation. Up to 1845 a Boston municipal ordinance made bathtubs unlawful except on medical advice; the doctors themselves said bathing was dangerous to health.

Despite reluctance to change, despite the forces of evil, despite chance and all obstacles, there are great challenges to be met today; and young people need to be aware of them. We are looking for people to solve some of the medical ills of mankind, for people who will solve the social ills of mankind, particularly the madness which causes the human to embark upon great orgies of self-destruction at intervals. Einstein discovered a formula to measure the energy in matter—$E = MV^2$. With his formula as a base, we have entered the atomic age. Is there some child now in school who will devise a social formula which will enable us to enter the peace age?

There are lesser goals one could point out more closely related to our work in school. Is there anyone to lead a movement to reform English spelling? Is there anyone who can move us to adopt the metric system in its simplicity, instead of the old English measures?

We need all our young people to become aflame with the possibilities of their role in this world. They need to realize that the opportunities are great, that they are all around them, and that each person has his own role to play no matter how small or unimportant he may seem to himself. The youngster should be brought to realize he must be a responsible part of the great fabric of mankind.

> Acheson—Worth of the Individual
>
> It seems true in society, as in nature, that the greatest energy is created by releasing the power of the smallest unit. In one case, the individual; in the other case, the atom.

He needs to know that it is better to light one small candle than to curse the darkness. And, above all, he needs to have hope in the future and to believe that human affairs can be controlled by humans in a desirable fashion. As one man has put it, "I believe in the future because I make it."

In a frightened world sometimes marked by despair and fear of the future, we must neglect no opportunity to show our young people through examples from the past and present that, while man's inhumanity to man is everywhere around us, his incandescent goodness is also in evidence, and each of us has to make up his mind which side he is on. Life has its material aspect, but it must have other aspects more satisfying to man's deep seated desire to be part of his time and perhaps part of history. In our daily work, as opportunity offers, we can bring this out in what we say and in what we do—in all education, special or not.

A CRISIS IN EVALUATION

Maynard C. Reynolds

About three-quarters of a billion dollars were appropriated for this year by the United States Congress to support new school programs for "educationally deprived" children. Next year the appropriation is expected to be higher. The legislative reference is to Title I of Public Law 89-10, which is the single most significant enactment within a broad pattern of legislation which has created a large and, in many ways, new federal partner in educational affairs of the United States at elementary and secondary school levels.

I wish to underline two things about this legislation and the programs it supports. The first is the emphasis upon innovation. A community which offers preschool classes, speech correction, psychological services, or other specialized programs will usually qualify for federal support if and only if the service is new. As a result, thousands of school districts are taking on new functions this year. The political leaders and the new administrators in the expanding federal educational bureaucracy are saying, in effect:

> The school programs of the past have been held too closely to the mainstream; there has been too little change: by their very organization and emphases, schools have compounded the problems of neglected children. Create more streams. Broaden the options. So serious is the problem that we hereby allocate most of the federal educational resource to the support of new programs.

The second point of emphasis is the insistence upon program evaluation. Every project under Title I of PL 89-10 requires a report of evaluation. Many of us have not yet begun to realize the wide implications of this requirement. It certainly proposes a radical change in the habits of educators. Miles (1964, p. 657) reports that "educational innovations are almost never evaluated on a systematic basis." This conclusion is supported by recent reviews made in our two most populous states (Johnson, 1964: Brickell, 1961). The evaluation problem created as part of the new federal support program is now rising and rolling toward us and will soon reach shock wave intensity. Of course, we've always had an evaluation problem, but until now it has usually been relegated to some dark place for hiding.

A unique and rigorous test is being placed upon the schools of the United States this year. After years of talk, federal support became a reality. Planning and discussion were perfectly open for all to see for a long time, and even the time interval from authorization to appropriation on PL 89-10 was long enough to give fair warning to those who wished to hear and to plan ahead. But how well were the schools organized for change? How effectively is the shift from talk to action taking place?

I see some failure and some clear success, but mostly a barely passing performance this first year. Many problems of long standing have become visible just in trying to design and launch new services—problems such as inadequate staffing of state education offices, inadequate school district size, personnel shortages, and general inflexibility in meeting new problems. These early difficulties should stir us to help mobilize the forces necessary for improvement.

My guess is that even surpassing the present difficulties in organizing new programs will be the problems of evaluation. Little preparation has been made for this phase of present developments, and again some fundamental and longstanding problems are likely to come to surface. Failures and successes here may not be highly visible in the short range, but they can be of crucial significance in longer range.

The Purpose of Evaluation

We sometimes think of evaluation in very threatening terms. Especially if funds for a project come by special grant from an external source do we fall easily into thinking about evaluation as a kind of final positive plea made just before the verdict on project renewal is reached. This puts evaluation into a kind of good-bad, general accounting framework.

Reflection quickly suggests the futility and even the danger of such an orientation. The most important requirement of an evaluation is that it reveal as objectively and as fully as possible what is happening as a result of the project. It should show the specific abilities or other attributes that are developing among pupils, the extent of such developments, and the interactions among pupil characteristics and other variables as the project proceeds. Out of this kind of knowledge, programs can be improved! The purpose of evaluation in education is simply to contribute to improvements in instruction—certainly not to justify projects.

A Special Responsibility

The field of special education has a particular responsibility in this context, partly because it has been favored as an area of emphasis in recent legislation. Many of the new programs under Title I of PL 89-10, for example, are designed to serve handicapped and gifted children. But other forces also serve to bring a spotlight to special education at this time. Our field is ripe for innovation because of a new and more open attitude. We're less sure today than we were even a few years ago about the potentialities of the children in our classrooms. Perhaps we have less to be defensive about than some other fields, just because we are of a mood to admit that old base rates for educational progress aren't very stable or very impressive.

This changing outlook undoubtedly has roots in many social and economic conditions and forces. Organized parent groups, insisting that their handicapped children can and should be helped, have been a goading external force of great influence. But there has also been much ferment in the community of those who think mainly of research and theory.

Besides "Batman" reruns, we're seeing frequent reruns these days on the nature-nurture studies of the 1930's and later. Recent reviews suggest that although many of the early studies were faulty in details, the total weight of all evidence suggesting the importance of environmental determinants of functional intelligence cannot be neglected (Hunt, 1961). A few recent practical demonstrations, such as Kirk's (1958) preschool study of the influence of school programs and the price of educational neglect on the intellectual development of children, have added force to a shift in views. The view which is emerging does not ignore genetic factors, but it does encourage a more optimistic outlook concerning the extent to which the achievements of children can be influenced by particular kinds of efforts. Many of the interesting new programs in special education grow out of this optimistic framework.

A growing and more radical general influence is a resurgence of the psychology of the empty organism—the view that behavior can be understood in surface or peripheral terms. The central procedure of the behavior modifiers a la Skinner is operant conditioning, which simply involves rewarding desired behavior (or approximations of it), thereby shaping the behavior and influencing the probability of its reoccurrence. Those who are committed to this highly environmentalistic outlook have generated a great deal of openness and optimism. McClelland (1965) has classed them with religious missionaries in the sense that they believe so strongly that almost any human behavior can be changed if only one approaches the task with conviction, appropriate techniques, and patience. Scholars of this persuasion have great appeal to teachers, because they accept a very practical test for their ideas. That test is simply: does it work? Many new projects may be observed in special education which grow out of the specific ideas of Skinner (1953) and his associates.

The intellectual ferment also includes elements quite opposite to those of the operant conditioners—an emphasis upon central structure and processes, especially cognitive structure and processes. Those of this persuasion insist that much more is involved in understanding complex behavior than knowing about environmental contacts and reinforcement histories. Between sensory input and responses are mediational processes of varying degrees of complexity. A great many new programs are being launched in special education which have their theoretical base in theories relating to cognitive development and intellective processes.

However different and conflicting the theories may be, there appear to be a few common themes, including a more open view concerning human potentialities and a special emphasis upon the early years of life as the period of greatest modifiability. I cite these somewhat theoretical notions not because they are uniquely relevant to special education, but simply because special educators, more than other educators, have been paying attention to the theoreticians and vice versa, with the result that thinking and innovative developments in our field have been influenced markedly by theory.

Much impetus and specific forms for innovation grow from this surge of ideas. There is some danger that theorists will recruit teachers to their views prematurely and that we will get a kind of "choosing of sides" among educators. The desirable course for teachers is to proceed with the innovative developments proposed by theory, but to maintain a rigid objectivity in testing outcomes.

The Values in Evaluation

Imbedded not very deeply in the word evaluation, yet often repressed, is the base word "value." This suggests a pause to think carefully about what it is we are trying to accomplish in our programs—what it is we value. It is not enough simply to measure what we're doing to test whether present programs are effective, nor do statistical tests of differences tell us whether differences are really important. The question is: what ought we to be doing in the schools for exceptional children? This is by no means entirely a technical question.

A bit of history shows now fickle we have been about the values represented in special education curricula for the handicapped. At various times and places we have seemed to slant our values toward vocational training, development of personality and motivation, academic skills, simple relief to parents, social adjustment, sheer happiness, or use of leisure time. We seem all too ready to let new curricula or technology sway our objectives. Today there seems to be a strong surge of interest in what has been called a kind of intellectual plainsmanship. "Find the child's weaknesses or disabilities and remedy them" is a common theme.

Let me illustrate the problem further by citing a few specific concerns about what it is we ought to accomplish. Some observers note that in present programs, retarded children tend to become outer directed or greatly sensitive to cues from other people, rather than inner directed, self-reliant, and forthright in their behavior. Do we think this is desirable for them, perhaps as a precondition to the greater degree of supervision they may require from others? Or do we regard this as a specific problem to be avoided by teaching them in ways which make them more self-reliant or inner directed? I believe we can and do influence children on this variable. What's your choice?

Should everyone learn to read, even if it involves agonizing difficulties and great sacrifices in other kinds of learning? How much time and attention should be given to teaching directly for intellectual development of the retarded? How successful do we need to be in such efforts to justify neglect of other dimensions of learning in which modifiability may be greater? Under what circumstances is it justifiable to teach children a communications system (such as manual methods for the deaf) which is usuable only in special and very small social systems? How much time can we justify spending on teaching severely crippled children to walk?

These are difficult questions which must be answered in specifics, not glossed over in highly abstract terms. When we have been clear about what it is we want to accomplish, we can then proceed to teach and to put yardsticks on the operation to guage success and to plan improvements.

The Measurement Problem

It would be a happy circumstance, of course, if all the needed technical background for this next step—measuring program variables—were well established, but unfortunately that is not the case. Indeed, we have only a dawning awareness of some problems in this sphere.

One of the difficult problems is concerned with measuring change or growth. To assess the effects of a treatment, we are often interested in changes that take place in children during a specific interval of time. Commonly we give pretests and posttests and look at the differences which individuals show during the interval as growth or change. It all seems simple, but appearance is deceiving. An indication of the problem is that on variables of interest in education we so often get negative correlations between measures of change and measures of beginning status. What is becoming clear is that instruments which are useful in measuring current status may not be useful for measuring change. The measurement of change presents its own distinct problems of reliability and validity (Harris, 1962).

The problem of measuring change can be seen most clearly at the level of evaluating individual progress. If we have repeated measures of individual children, we're likely to find that those of high achievement tend not to be changing much, and those of lowest achievement show highest gains—whether judged in raw score or grade score terms. Such observations may result simply from technical problems of measurement. Unfortunately, there are no neat solutions to this problem as it concerns individual pupils. I mention it here because there are so many misinterpretations of measurements on this point.

A closely related and equally fundamental difficulty concerns the ability of most of our present tests to differentiate among groups receiving different treatments. Almost all of the tests commonly used in the schools have been constructed by techniques which serve to accentuate differences among individuals. Thus, in the typical experimental paradigm of pretest-treat-posttest, we get wide variations among individuals on both the pretest and the posttest. For purposes of comparing one method against another, however, it would be better to have near zero mean scores and zero variability at the beginning of the experiment, with posttest results showing substantial means and variances. Tests to serve in this way would be exceedingly difficult to construct. They would need to be developed by techniques which are specific to the problem of differentiating treatment differences, rather than individual differences (Glaser, 1963).

A third closely related technical problem, one which is particularly bothersome in special education, relates to regression effect. When we select children for special programs on the basis of very high or very low performance on some measuring device, it is almost inevitable that they will tend to be less deviant on a retest, even if given the next day. Those who score low initially will go up and those who score high initially will tend, in relative terms, to score lower on the retest.

Many reports of special education research appear to show most striking treatment effects in the initial part of the study. It is difficult in such cases to justify arguing for treatment effects against the simpler hypothesis of mere regression effects. A similar observation may be made when several measures are taken on individual children. Even if tested the next day, children will tend to show improvements on their lowest scores and decrements on the variables where they initially scored high. These circumstances frequently lead to misleading interpretations of the effects of remedial programs. Fortunately, definite corrective actions can be taken to avoid such misinterpretations through use of control groups for comparison purposes.

There are, of course, many other measurement problems. For example, Guilford (1959) is undoubtedly correct in his view that present school measuring devices tend to emphasize mere awareness, retention, and single answer problem solving. We badly need to develop procedures for assessment of evaluative abilities and productive thinking of more diverse forms. If we wish to teach for abilities in this expanded domain, then we must somehow begin to assess individual and group pupil progress over a similarly expanded domain. Deep issues and problems exist which are concerned with norming, range restriction, and format of scales specially created for exceptional groups.

Psychological Barriers to Evaluation

An equally serious problem is a tendency to avoid careful evaluation of creations for which we feel special responsibility. This problem is certainly not unique to special education. Kendall (1964) has said:

> . . . creators of experimental programs often impress one as being men of conviction who have little question about the efficacy of the changes they have introduced. They know that the courses they have developed are the best possible under existing conditions; and in the light of this assumed fact, systematic evaluation seems superfluous (p. 344).

Brickell's (1964) study of innovation in schools of New York state led him to this somewhat similar comment:

> . . . design, evaluation and dissemination are three distinctly different, irreconcilable processes. The circumstances which are right for one are essentially wrong for others. Furthermore, most people prefer to work in one place, and find working in the others uncomfortable if not distasteful. People preferring different places often have an abrasive effect on each other when brought into close contact (pp. 497-498).

A further commend from Brickell (1964) is insightful: "Almost every research specialist the writer met in a local school system seemed somehow misplaced. His desire to hold a new program steady in order to evaluate it ran headlong into the teachers' urge to change it as soon as they sensed something wrong" (p. 498).

The three phases of innovation as outlined by Brickell—design, evaluation, dissemination—make a proper sequence, but the clear fact is that almost always we have skipped the middle step. Perhaps this is because it is so difficult, expensive, and intrinsically threatening to subject our programs to test. If Brickell is correct (as I think he is) in saying that different people will often be involved in design and evaluation, then evaluative efforts may also involve personal confrontations that are threatening.

The major thesis of my remarks is that despite all the difficulties, we must proceed in all seriousness to evaluate programs. Design and evaluation must be seen not as competing activities (the latter only delaying and denying needed services), but rather as necessary parts of a sequence and broader cycles of activities designed to build programs that are dependable and worthy of our high responsibility.

Some Possible Guidelines

I do not have solutions, much less tidy ones, to all of the above problems; but I would like to reflect a bit on a few possible approaches to solutions. Above all other suggestions, perhaps, is the simple one that we turn more attention, talent, and time—and the sooner, the better—to problems of evaluation. But let us proceed to a few somewhat more specific considerations.

The Questions We Ask. There has been a tendency in the recent past to over emphasize large questions when we think about evaluation. In the past decade, for example, there have been a number of studies concerned with comparing the efficacy of regular classes and special classes for retarded children. I agree with the Robinsons (1965), who say that few of these studies deserve serious review. The main difficulty with most of these studies is that they started with a group of children already in special classes and then proceeded to compare them with control groups recruited in very different ways. It is very difficult to be sure what a special class or a regular class is, yet there have been some incautious generalizations from the recent studies.

We need more patient work, biting away at processes of learning and teaching, trying to specify the variables about which we should be sensitive in teaching exceptional children. And in a gradual way, hopefully, we will reshape programs toward workable total systems. It is to be hoped that as evaluations of the new programs now being launched go forward, we will not always feel obliged to make total, summary judgments. Of course, there are occasions for the big scale comparative studies, but we will be better off with only an occasional and carefully planned big horse race.

Experimental Design. Many of the evaluative efforts we undertake will necessarily fall short of the ideal designs which statisticians create. Sometimes the truly important problems involve people and situations which don't bend to fit the design model. The answer here is to compromise the design of studies as little as possible and to be aware of what we're doing. One particularly important requirement in studies is that we run control groups for comparison with experimental groups and that we do this with utmost care. Many of the problems which we otherwise encounter are curtailed if we do a conscientious job of setting up controls.

A serious deficiency encountered repeatedly in reports of evaluations is failure to describe in sufficient detail what the experimental variable was. To make results useful in any broad way, it is necessary to clearly and operationally define treatments;

and it is helpful if description of control conditions is also given.

Development of Measurement Techniques. In earlier portions of these remarks I've stressed the very great technical difficulties we face in attempting to measure educational outcomes. There are no quick and easy solutions here. This problem should alert us so as not to be misled into evaluation schemes biased simply by availability of particular tests. I prefer the judgments of disinterested colleagues—a kind of Consumers Report—to studies overly refined in design, but weak at the point of measurement.

Strong efforts should be made to develop techniques and instruments of measurement which are useful in special education. This exceedingly important activity comes up too often, just as an ad hoc effort within a broader study. Instrumentation deserves to be a well supported activity apart from specific experiments. The successful development of instruments then becomes a springboard for later application in evaluative studies.

A New Team. The evaluation problems stressed here are those of the classroom, school, and clinic—the practical marketplace of education. Not many specialists in evaluation reside there. There are too few specialists of the kind we need anywhere. Some are in colleges and universities.

If designers and evaluators work far apart, can we expect effective collaborative work? Freeman and Sherwood (1965) suggest that the evaluator, if at a distance, can set his evaluative techniques after simple guessing about overall goals and later be told he was wrong; or "he can insist that program persons provide them (goals) in which case he should bring lots of novels to the office to read while he waits, or he can participate or even take a major responsibility for the development of the action framework." Their conclusion is that "if the researcher is going to act responsibly as an agent of social change through his evaluation research, it is probably mandatory for him to engage himself in program development" (p. 17).

In the future the schools will themselves more frequently employ evaluation specialists in addition to the use of part time consultants from universities or other agencies. All of us must anticipate new team relationships and join in constructively, defining new roles in the expanding enterprise of evaluation.

Borrowing from Friends. Many more guidelines and problems might be explored. If time were available, I would especially stress the importance of more adequate training in evaluation for all special educators and of training more specialists in the area of evaluation. The fact is that most special educators are not very sophisticated about evaluation procedures, and we will need to do all we can to upgrade ourselves and to utilize talents from neighboring fields as well. I would also stress the importance of looking to other specialties, such as agriculture, for guidance in ways of dividing up jobs of design, evaluation, and dissemination. We will probably need a few very large centers to carry out major tasks in evaluation.

Each community needs to decide for itself when its local circumstances alter the applicability of evaluative findings from other communities and when values generally held for specific programs are not acceptable. Every school district has its evaluation problems, but individual school systems will rarely be able to do large scale systematic research. Indeed, it would be wasteful for every school district to undertake systematic studies of every new program. Thus we need to plan and build, probably in concert with developments relating to other aspects of education, a variety of kinds and levels of research centers.

An Antidote for Unlimited Openness. As commented earlier, there is a great deal of openness of views in special education these days with respect to possible achievements of exceptional children. It is to be counted a gain that views are more open and positive, but there are dangers inherent in such a situation as well. The indefiniteness of the situation invites attempts at closure by the untutored and by those who would play the charlatan's role. Some will be seduced by simple charismatic appeal.

All of us must clarify for ourselves an attitute in this matter. Somehow we must be open in our views, yet realize that it is no kindness to be unrealistically optimistic in instances of specific children. It is necessary to make predictions, at least of short range, concerning particular children in order to plan for them, and sometimes what we honestly foresee is not very encouraging. How do we achieve the needed balance between openness and realism?

The key is simple honesty. In dealing with individual children, predictions and decisions must be made on the basis of present knowledge and programs. It is not relevant to the immediate problem that we and others may think that much more promising programs are "just around the corner." At the same time, we can maintain a general openness and strive to design and evaluate programs which will create the more favorable prognosis in the future.

Summary

The schools of the United States are engaged in a very rapid expansion of specialized school programs. The leaders who have allocated resources to support the programs have also insisted upon systematic program evaluation. The implications of this have not really registered with us in a broad, practical way, and there is some danger that we will let evaluation procedures slip to perfunctory levels. This great challenge comes with heavy force in the field of special education, because programs for exceptional children have been favored in recent federal legislation. All of this arises at a time of great intellectual ferment relating to our work.

All of us must be concerned about the response which is given in this situation. Almost one hundred years ago, there was much eager school building for the handicapped. Theories of that time and some practical demonstrations were encouraging, but views changed and expectations of some of the leading program advocates proved to be unrealistic. Professionals deserted the field for half a century. Only very recently has there been a return to the task of educating all children, including those we serve in special ways. Much depends upon careful evaluation of the programs we are now building and upon our ability to reshape programs in accordance with the hard facts of results.

If we proceed incautiously, there is risk of coming up with seriously wrong answers. We must not put special education at risk in that way. If we proceed carefully, exceptional children will be better served. We are about to be called for an accounting. Let us do the difficult job and do it well!

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